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ELECTROENCEPHALOGRAPHY: ITS APPLICATIONS IN NEUROLOGY AND PSYCHIATRY

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Introduction

Electroencephalography as a diagnostic aid in neurology and psychiatry seems to be fairly well established at the present time. Its further use as a possible prognosticating agent in some conditions, and as an implement in the therapeutic armamentarium of certain neuropsychiatric disorders, is strongly indicated by recent investigation. In addition, it has opened new channels for study in experimental psychology and in experimental medicine.

Various theories have been proposed to explain the origin of the brain waves recorded by the electroencephalograph and also to explain the mechanisms involved in the development of the various types of rhythms.[1-18] What remains quite evident, up to the present, regarding all of these theories, is that they still have essentially the status of hypotheses, and require further evidence for final validation. It may be assumed for the present, however, that the brain wave record is related to the electrophysiological activity in the cortex, although some interrelationship in this type of activity between the cortex and the subcortical centers probably exists.[1e, 1j, 9, 13, 19, 20, 21]

Methods

The brain wave set in use at the New York State Psychiatric Institute and Hospital utilizes a two-channel amplifying recording system, although three, four and six-channel sets are in wide use. It would appear that for ordinary clinical work, and even for most investigational purposes, a two-channel set is satisfactory, since all regions of the cortex underlying the scalp can be as well studied as by use of the higher-channel electroencephalographs. The disadvantages lie in the slightly greater amount of time consumed with the two-channel instrument in recording all the potential variations from the different regions of the cortex—inasmuch as only two leads can be run off at a time—and also in the impossibility of studying electrical variations occurring in more than two areas of the brain simultaneously. These disadvantages are by no means

serious, except in certain unusual circumstances; and they are offset somewhat by the fact that the two-channel set is easier to keep well-balanced and in good running order than are those with a greater number of channels.

An important detail involves the matter of the electrodes which are attached to the scalp over the various underlying regions of the cortex. At the present time, two types of electrodes are in use at the Psychiatric Institute, both giving rather satisfactory and similar results. The type in more general use consists of a small, flat drop of solder into which a copper lead-wire has been embedded. Contact with the scalp is made by means of a small amount of electrode jelly placed in a depression on the scalp side of the solder drop, and the electrode is then firmly fixed to the scalp by means of collodion. The second type electrode consists of a small rubber cup filled with electrode jelly and placed firmly on the skin by means of suction; a thin copper wire, "beaded" at the end by solder and in contact with the jelly, is passed through the top of the rubber cup and is lead off to the amplifying system. These rubber suction electrodes are easily and rapidly applied, but can only be used in the areas where little or no hair is present, since the presence of much hair interferes with their firm application to the scalp.

One of several schemata for placement of the electrodes on the scalp to obtain electroencephalograms (EEG's) may be used.[6, 20, 22, 48] The simple routine method in use at the Psychiatric Institute consists in the placement of three electrodes bilaterally parallel to the mid-line extending antero-posteriorly in line with the pupils of the eyes, and in positions on the scalp corresponding to the underlying prefrontal, motor and occipital areas of the cortex. (Fig. 1) In addition, a "vertex" electrode is placed in the mid-line antero-posteriorly and in a line corresponding with the "motor" electrodes laterally; and finally, "indifferent" electrodes are placed on each ear lobe. In a routine recording, therefore, a minimum of nine electrodes is used. Records are then taken of electrical potential variations occurring simultaneously on the right and left sides of the head between the frontal and occipital electrodes (FO lead), the frontal and motor electrodes (FM lead), and the motor and occipital electrodes (MO). Differences in po-

tential are then recorded between the two frontal electrodes, (transfrontal or TF lead), the motor electrodes, (transmotor or TM lead), and the two occipital electrodes, (transoccipital, or TO lead).

The "indifferent" electrodes may be connected to any of the others mentioned; and we may, therefore, have the indifferent-frontal lead (IF), the indifferent-motor leads (IM), and the indifferent-occipital leads (IO), on each side of the head. In the same manner, vertex leads are employed, although in these leads the vertex electrode is common to both the right and left sides. By this method, a gross localization of any electrocortical disturbance may be made. To circumscribe further a localized dysfunction, additional electrodes may be employed over the suspected area.

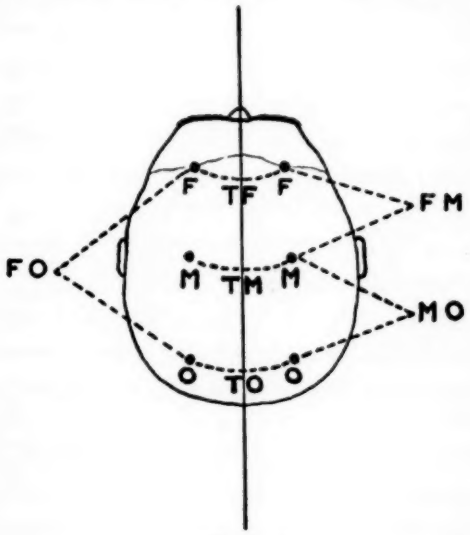

Figure 1

Diagram illustrating placement of frontal, motor and occipital electrodes. Dotted lines indicate some of the routine leads employed. Vertex and "indifferent" electrodes have not been indicated.

F=frontal electrode.
M=motor electrode.
O=occipital electrode.
FO=fronto-occipital lead.
FM=fronto-motor lead.
MO=motor-occipital lead.
TF=transfrontal lead.
TM=transmotor lead.
TO=transoccipital lead.

It should be emphasized that all routine electroencephalographic records are taken under what may be described as "basal conditions." This means that the patient is in a reclining position, as fully relaxed as possible, entirely quiet, eyes closed, but awake. The room must be thoroughly grounded electrically so that the electrodes will be shielded from the house current. If any other persons are present in the room, they should refrain from movement of any type, or from talking to each other or to the subject, as such actions may disturb the record. The subject should be requested to refrain from any active thinking or concentrating; and he must be impressed with the necessity of avoiding any movement, no matter how slight, or any change in tone of his musculature even without any appreciable movement. It is highly desirable that the patient be carefully observed during the actual recording, and notations made of the state of relaxation, any movements, etc. It is obvious to the experienced clinician that with many psychiatric cases the attainment of such "basal" conditions may be extremely difficult, if not impossible.

The Normal Record

In the proper evaluation of a record, at least three essential activities are involved: first, the recording and classifying of the electrical potentials according to a definite scheme; second, the interpretation of the record in terms of electrophysiological function or activity; and third, the correlation of the record with the clinical history or status of the subject. The first process, recording and classifying the record, may be an entirely objective procedure; but the interpretation and correlation of these findings present a number of difficulties and introduce some features which may involve an element of subjectivity. In view of this, a careful and proper interpretation of an EEG requires not only considerable experience with records but also a fundamental knowledge of and experience with the various clinical states with which the records may be correlated.

Different schemata have been proposed for purposes of classifying EEG's,[22, 23, 24, 25, 26, 30, 47] but they all generally depend upon measurement of wave frequencies, voltages, incidence of the various types of waves and a consideration of the wave forms and patterns.

The most basic of all these, however, is the consideration of wave frequency or rhythm.

Two main types of rhythms are noted and recorded in the average normal EEG. The predominant and most commonly occurring one is called alpha or Berger rhythm[5] and consists of alternating waves occurring usually in interrupted series with a frequency of from 8 to 12 cycles per second, most commonly 10 cycles per second. They may constitute from 0 to 100 per cent of the record, depending upon the particular patient and upon the leads from which the recordings are taken. In the average case, the occipital leads show from 50 to 75 per cent alpha activity. As one moves anteriorly from the occipital area, the incidence of alpha waves diminishes; and as a result, the transmotor leads often show an "intermediate type of rhythm" as compared with the transoccipital and transfrontal leads. The fronto-motor leads exhibit, as a rule, very little alpha rhythm. The percentage of time that the alpha frequency appears in the occipito-indifferent record is called the alpha index,[23] and very interestingly, has been found to be approximately constant for a given individual over a period of years.[24, 27] The voltage of each wave is directly related to the amplitude as determined from the record, which is in turn calibrated in accordance with the electrical characteristics of the amplifying system. Using various methods of recording, the usual alpha voltage range has been found to vary from 15 to 60 microvolts, although variations as wide as from five to 100 microvolts have been noted in what have been considered to be normal records. The amplitude is generally highest in the FO, VO and MO leads, somewhat less or almost the same in the TO leads, and still lower in the TM, FM and TF leads.

The second type of rhythm observed has been called beta activity[1] and includes those waves exhibiting a frequency arbitrarily placed at from 20 to 40 cycles per second, although Jasper and Andrews[28] have limited the term "beta waves" to the frequency band of 20 to 30 cycles per second. These are of lower voltage than the alpha waves, show more irregular wave pattern forms, and do not usually appear as frequently in series as do the alpha waves. Jasper and Andrews have indicated that, like the alpha rhythm, the beta activity remains fairly constant on successive days for any one individual under unchanged circumstances. Beta rhythm is noted

most prominently over the frontal regions, where it often constitutes the major activity of the record.

Other types of waves appearing in the normal record during the waking state have been described,[1h, 20, 29, 30] but they have not as yet been clearly delimited or fully agreed upon by various investigators; and, therefore, no discussion of these waves will be entered into at present. Fig. 2 illustrates normal recordings from the intact skull.

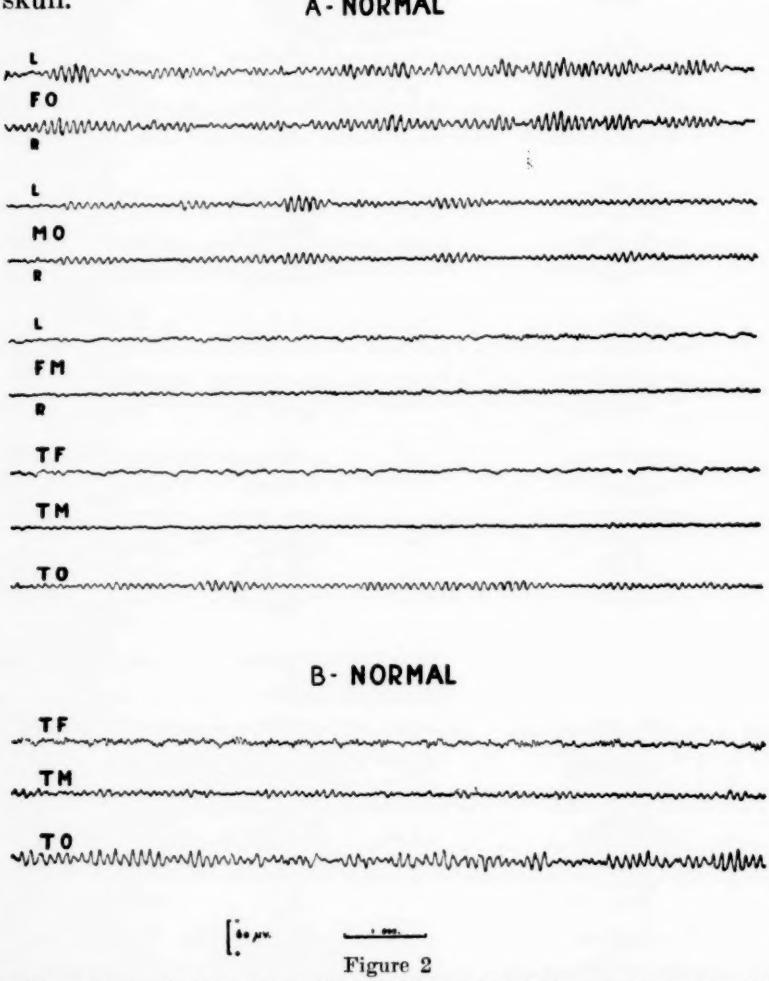

Figure 2

A—Normal record, illustrating alpha ("Berger") rhythm most prominent in the occipital leads.

B—Normal record, only of the "trans" leads, illustrating beta rhythm most prominent in the frontal lead.

It should be remembered that wide variations in the "normal" record occur, with marked differences in the voltage output and in the relative frequency of occurrence of the different types of rhythms from subject to subject. However, an interesting and perhaps very significant feature is that the alpha frequency for any one individual remains fairly constant[28, 31] once it has attained the "adult level." In this connection, the investigations of Lindsley have indicated that there are no recognizable rhythms in normal infants under three months of age, that for the first three to nine months only occasional, regular sequences of smooth waves appear at 4 or 5 cycles per second, and that the frequency slowly increases with age until the "adult level" is attained, usually between the ages of eight to 10 years.[32] The findings of Lindsley were largely confirmed by Smith,[31, 33] and subsequent investigations by Lindsley have elaborated more fully on the development of human brain rhythms.[30, 34] A number of other investigators[1d, 23, 29, 35] have also reported lower frequencies in normal children, as compared with adults. Nevertheless, it appears that much more data are necessary before the record of a child can be carefully interpreted as either a normal or abnormal record. Alpha waves taken from homologous brain regions are very similar, and mainly synchronized, particularly in the occipital regions, but are not necessarily identical.[28, 30]

Artefacts: Because of the great sensitivity inherent in the amplifying system, artefacts are easily produced, occur quite frequently, and are often extremely difficult to differentiate from potential variations emanating from the brain. Artefact waves assume all manner of bizarre shapes; and it is only by constant practice and observation that one is able to detect in most instances the "true" form from the "false" waves. Muscle-action potentials frequently appear in the record, and these may easily be mistaken at times for beta or higher frequency electrocortical activity. As a rule, however, these action currents from muscle are of a relatively higher voltage as compared with the remainder of the record; and they may be associated with movement of some kind on the part of the subject. At times, the movements are so slight that they are not noticeable by the examiner, and may produce deflections of the recording pen which are within the average voltage

range of the cortical potentials in the record; these artefacts then become extremely difficult to "spot." Movements of the eyelids, even though slight in range, may produce impressions in the record, and as a result, are sources of constant annoyance to the electroencephalographer, particularly when frontal leads are being used. Lid blinks, however, usually produce a characteristic type of wave which often suggests its origin quite readily.

Artefacts also may be caused by improperly made, or poorly attached electrodes, or by defect in the amplifying and recording systems. All these possible sources must be carefully checked, particularly when the record shows abnormal or peculiar wave patterns, whether localized or generalized. If a patient is wearing hair-pins or bobby-pins, it is desirable that they be removed from the hair. Extraneous sounds may jar the patient and possibly alter the pattern of the record. It should be noted that, in general, most types of afferent stimuli tend to decrease the voltage and diminish the incidence of alpha rhythm.[1, 36] Visual stimuli in particular, may completely abolish the alpha waves, although usually only for a temporary period. (Fig. 3)

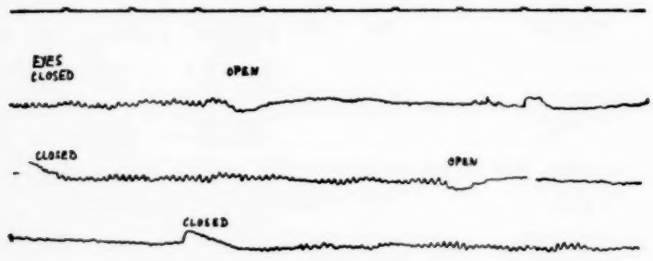

Figure 3

Record illustrating the effects on alpha rhythm of opening and closing the eyes in a moderately-lighted room. The top line is a "second-marker."

The Abnormal Record

A. *Criteria for Abnormality*

Although no sharp lines delimit the abnormal from the normal record, there are certain features which connote pathology, in the electrophysiological sense. The first of these is the presence of low frequency waves in the adult of less than 7.5 cycles per second, and occurring serially or at random. If they appear singly at ran-

dom, and at infrequent intervals, one must exercise a good deal of caution before interpreting them as of pathological significance. The slow potentials often exhibit a greater amplitude than does the remainder of the record, although wide amplitude variations of the slow waves are commonly observed. The forms of these waves may be regularly curved, or may be entirely irregular, with or without superimposed higher frequency potentials. One may see them distributed only over a localized area of the cortex, or diffusely spread over the entire underlying cortex, depending upon the cause and nature of the pathophysiological disturbance.

A second feature usually associated with abnormality consists of a disorganization of rhythm and of wave-pattern forms, appearing either over a localized region of the cortex, or throughout the entire underlying cortex. In these records, one notes very little, or no serial alpha activity, even with the patient in a well-relaxed state. The great majority of the waves are characterized by marked irregularities in contour, some being spiked, others flattened at the apex ("table-top" waves) and still others merely being "crooked." The "table-top" waves are not so shaped because the linear limits of the recording system have been exceeded since the amplitudes remain well below the maximum voltage range of the pens. These irregularly-shaped waves appear at random, and exhibit marked variations in frequency and voltage in the individual record. As a rule, very little of normal synchronous activity is observed on corresponding sides of the cortex.

A third feature suggesting abnormality involves the presence of bilateral asymmetries in the record. These may consist in the appearance of low frequency waves, or of a disorganization of rhythm and wave-pattern form recorded from a particular region of the underlying cortex and not appearing from the corresponding area on the opposite side. The asymmetry need not be dependent upon the development of abnormal features in one region and not in the corresponding opposite one, but may also be occasioned by differences in voltages or in the incidence of alpha and beta waves on one side as compared with the opposite side. In these latter instances, one must carefully check the electrodes and the amplifying-recording systems to rule out the possibility of their being the source of the asymmetry.

Usually, in any one electroencephalographic record classified as definitely pathologic, all of these foregoing features of abnormality may exist in varying degrees, relative to each other. In general, hyperventilation for a period of one to two minutes often exaggerates any abnormal features in the EEG pattern, or may bring out a "latent" electrophysiological disturbance in a record appearing entirely normal previous to hyperventilation. Ordinarily, in a so-called truly normal record, the electrocortical activity as evidenced by the EEG remains fairly stable during and following one to two minutes of hyperventilation, undergoing only a temporary and relatively slight increase in the amplitude of the waves, with no essential change in the general pattern. Such a procedure, therefore, should be routinely performed in all recordings.

B. *Factors Related to the Degree and Character of the EEG Abnormality*

There appear to be at least three factors which seemingly may bear some relationship to the degree or severity of the EEG abnormality. These include, (1) the rapidity of development of the pathological or physiological change in the brain, (2) the severity or the type of the change, and (3) the recency of the change. All of these three factors are probably interrelated in some fashion and, in different individuals under varying circumstances, may be responsible in various relative degrees for any electrophysiological disturbance. The writers wish to emphasize here that correlations are being made between the actual pathological changes in the cortex, and the EEG, and not between the clinical status of the subject or patient and the EEG. In the latter case, other additional complicating and complex features are introduced.

In the evaluation of electroencephalographic records, one important thing must be kept in mind, namely, that the EEG is an index primarily of the electrophysiological activity of the cortex. It is conceivable, therefore, that many different conditions of disease or abnormality involving the central nervous system may produce similar electrophysiological disturbances in the nervous tissue and may, thereby, be reflected similarly in the brain wave pattern. Electroencephalograms are not necessarily specific or pathognomonic for any one condition, so far as is known at the present time,

with the one possible exception of petit mal epilepsy.[37] As a consequence, certain demonstrable histopathological changes in the brain such as inflammation, degeneration, hemorrhage, or edema—whether caused by neoplasm, abscess, trauma, infection or some other process—may produce similar alterations in the electrophysiology of certain areas of the cortex, and thus reflect similar abnormalities in the EEG pattern. In the same fashion, electrophysiological changes may occur in the cortex not associated with any constant demonstrable cerebral histopathology, but associated with such changes as an alteration in the pH of the cortex,[38] changes in the content of the blood or tissue fluids,[8, 12, 39, 40, 41, 42] the administration of certain drugs,[43, 44, 45] or even the condition of normal sleep.[29] Therefore, whether the physiological change is primary in the brain or only secondary to an altered physiological state or disease condition confined mainly to some other part of the body but which also involves the cortex, brain wave patterns may be produced which not only resemble each other, but may also bear close resemblance to patterns obtained in organic structural disturbances of the brain. We can hope to establish relationships between the brain wave patterns and various disorders only insofar as these disorders are correlated with the electrophysiological states of the cerebrum.

Uses of the Electroencephalogram in Various Clinical States

The writers have arbitrarily divided this aspect of the discussion into two parts: (A) EEG findings in certain conditions with demonstrable histopathological lesions of the brain; and (B) EEG findings in certain conditions not exhibiting specific or constant histopathological changes.

A. *EEG in Cases with Demonstrable Intracranial Pathology*

1. *Neoplasms.* Since the publication in 1935 of Foerster and Altenburger's work[46] and in 1936 and 1937 of Walter's investigations[47, 48] dealing with the localization of cortical tumors by the use of electroencephalography, much subsequent work has indicated the usefulness of this technique as an important aid in locating tumors, particularly those which involve the cortex.[49, 50, 51, 52, 53] Berger originally[1b] and subsequently Kornmüller,[54] Foerster and

Altenburger,[46] Walter,[48] Williams and Gibbs,[52] Schwartz and Kerr[53] and Scarff and Rahm,[55] have seemingly demonstrated that tumor tissue itself is electrically inactive, and that it is the disturbed tissue immediately surrounding the tumor which gives rise to the abnormal brain waves, and not the actual tumor tissue or any surrounding dead cortical substance. The abnormality in the EEG may consist in the local appearance of abnormally slow potentials, with a frequency varying from 0.5 to 6 cycles per second, and usually exhibiting relatively high voltage. A disorganization of rhythm and of wave-pattern form may also be fairly well localized about the tumor region. Case and Bucy[51] have described in addition the frequent occurrence of "irregular sharp or saw-tooth spikes" in such conditions. The degree of the EEG abnormality is no doubt related in some degree to the cortical change produced by the new growth. Therefore, it is conceivable that the more malignant and rapidly growing tumors, those producing the greatest damage to the surrounding tissues, and probably associated with much edema, hemorrhage, inflammation or degeneration of the areas will usually produce the greater EEG abnormalities.[48, 56] Deep-seated tumors which do not affect the cortex either directly or indirectly, or which produce very little if any cortical change and are not associated with any increase in intracranial pressure offer difficulties for accurate localization, and at times produce no significant alterations in the EEG pattern by the usual methods of recording. Posterior fossa tumors offer difficulties for localization and may frequently give entirely normal records, although recently Smith and associates[57] have reported highly successful attempts at localization of posterior fossa tumors in seven cases occurring in children by "detecting pathological foci of delta waves posteriorly over the occipital lobes." If a tumor causes a considerable increase in intracranial pressure and particularly if it is associated with any change in consciousness, then the EEG changes may be equally distributed over the entire cortex[1b, 48, 58] and so interfere with attempts to localize the lesion. In such instances suggestions have been made, particularly by Williams,[58] to diminish the pressure by means of dehydration therapy (intravenous injection of hypertonic salt or sugar solutions), thereby attempting to make it more nearly possible to localize a tumor. To date, the

great value of the EEG has been in its use as an aid in the localization of tumors, rather than in the determination of the type of tumor or lesion present. Statistics relating to the incidence of accurate localization have varied, and an insufficient number of cases has as yet been reported to quote any definite figures. Fig. 4 illustrates a relatively simple method for localizing pathological disturbances; in this instance, the patient was found to have a right frontal glioma.

2. *Trauma.* In injuries to the brain, where various pathological changes are encountered, such as intracerebral hemorrhage, laceration, edema, inflammation, etc., with subsequent healing and scar tissue formation, EEG changes are usually evident. Most commonly, slow, high voltage potentials appear—most prominently about the region of greatest damage. Investigations in these types of cases have been carried out by Williams and Gibbs,[56] Savitsky and Marmor,[59] and by Jasper and coworkers at Montreal.[60] The last have formed the impression that, in general, the extent of the damage (in the more severe injuries) as evidenced by neurological and roentgenological findings tends to be paralleled by the degree of abnormality in the brain wave pattern. As recovery proceeds, the EEG abnormality gradually diminishes with the disappearance of the abnormal clinical findings. In addition, the EEG is thought by Jasper to be even more sensitive than the clinical findings, since abnormal brain waves often persist for some time after all other clinical indications of cerebral functional impairment have disappeared. In a number of cases, these abnormalities have long persisted where sequelae such as changes in personality, disorder in thinking, irritability or epileptic seizures have occurred, or even where no remarkable clinical abnormality persists and all the abnormal neurological findings have previously disappeared. The implications of these findings may prove to be of great importance, but extreme caution should be exercised before invoking these findings in medico-legal matters involving posttraumatic "neuroses," or postconcussion syndromes, inasmuch as Jasper's findings have not as yet been sufficiently controlled or entirely confirmed.

3. *Degenerative Diseases.* Insufficient investigation has as yet been conducted and reported in these conditions (mainly arteriosclerotic brain disease, the presenile states, demyelinizing condi-

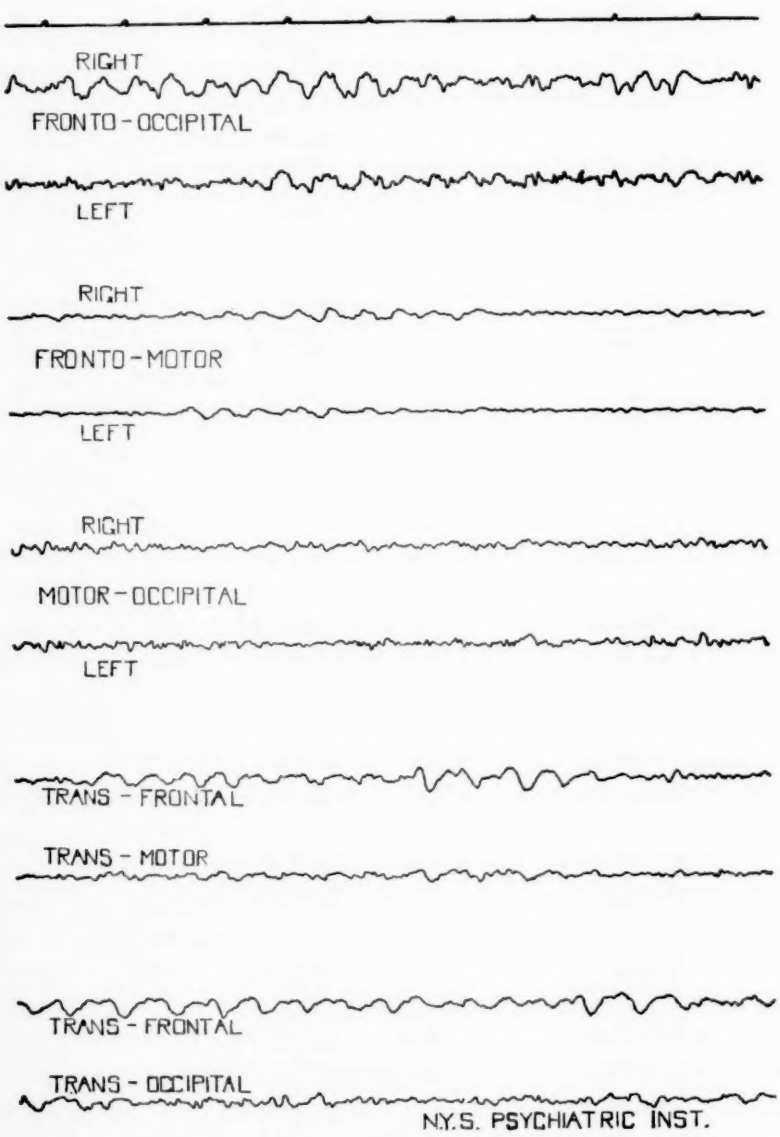

Figure 4

The record illustrates one of the methods which may be used to grossly localize a lesion in the brain. In the fronto-occipital leads, the abnormality, consisting of frequent 2.5 to 3 cycle per second waves, is definitely greater on the right side as compared with the corresponding left side. In the fronto-motor leads some slow potentials are also observed, slightly more prominent on the right as compared with the left. The motor-occipital leads however, show no definite

tions, and striatal diseases), but some evidence accumulated thus far[1b, 61] indicates that the electroencephalogram shows no uniform alteration of pattern in these states, and in fact, may often be associated with apparently normal records. On the other hand, Williams and Gibbs[56] report cases of arteriosclerotic atrophy, and a case of Schilder's disease exhibiting many slow, abnormal potentials. In Berger's cases of arteriosclerotic atrophy, Parkinson's disease, and Alzheimer's disease, the cases presenting the most severe clinical symptoms exhibited electroencephalographic abnormalities, whereas the milder ones usually did not. Yeager and Baldes,[50] in a few cases of cerebral arteriosclerosis, described a definite decrease in the percentage of the alpha component and a preponderance of the beta waves. In addition, the general potential output was reported to be substantially diminished. These findings are apparently more or less in agreement with those reported by Lemere[62] who found "a rather poor alpha rhythm" in six of seven patients with cerebral arteriosclerosis. Lemere also reported normal alpha rhythm in a case of postencephalitic Parkinsonism, mild diminution in the alpha rhythm in a case of Wilson's disease, and poor alpha rhythm in one of diffuse sclerosis and in another of disseminated sclerosis.

In general, it may be stated that when EEG changes are encountered, they are usually not marked, tend to be diffusely spread out over the underlying cortex (unless a local process only be present, as in Pick's or Alzheimer's disease), and may consist in a disorganization of rhythm and wave-pattern forms with the random appearance of irregular slow potentials of 4 to 6 cycles per second. It is asserted by Golla, Graham and Walter[63] and by Williams and Gibbs[56] that areas of "active cortical degeneration" produce high voltage waves of frequencies varying from one to three a second. Unfortunately, however, most of the records obtained in the degen-

slow waves, although a rather irregular pattern is present bilaterally. In the "trans" leads, the abnormal potentials are distinctly noted in the frontal leads, whereas they are rarely present in the TM and TO leads. Therefore, one would suspect from these recordings that the greatest degree of electrocortical dysfunction is situated in the right frontal region of the cortex. Additional electrodes may then be used to further delimit the pathological area.

In this particular case, the patient was found to have, at operation, a right frontal glioma.

erative conditions have not been checked or correlated with pneumoencephalographic or pathological studies of the brain, and therefore, definite conclusions cannot be drawn. It appears, nevertheless, that a slow, chronic process possibly brings compensatory mechanisms in the brain which tend to prevent much alteration in the electrophysiological activities of the cortex as revealed by the electroencephalogram.

4. *Encephalitides.* Very little data thus far has been published regarding the brain wave patterns in the various types of encephalitides. Jasper[15] summarizes the few findings in these conditions up to 1937, and since that time only meager reports have appeared in the literature. Yeager and Baldes[50] report several cases of syphilitic meningo-encephalitis and of postencephalitic disorders which reveal some abnormalities in the record, and in the latter group, describe a marked irregularity in the EEG pattern with also the infrequent occurrence of alpha waves. Lemere,[62] in six cases of general paresis, reports a "weak" alpha rhythm. More recently, Lindsley and Cutts[64] describe a case of acute encephalitis, apparently of the equine type, in a child of 10, which showed marked electroencephalographic abnormalities during the acute phase of the illness, consisting mainly of slow waves appearing in short bursts and persistent series in all regions of the head; normal alpha waves were almost completely absent. However, as the clinical behavior of the patient improved following the acute episode, and as the protein content of the spinal fluid gradually became diminished, the EEG evidenced a parallel course in its return to an almost normal pattern.

B. *EEG in Cases Exhibiting No Constant Demonstrable Lesions in the Cortex*

1. *Epilepsy.* In this disorder particularly has the EEG been of great value. In general, the great majority of patients diagnosed clinically as cryptogenic ("idiopathic") epilepsy and subject either to petit mal, or grand mal attacks, or both, exhibit some degree of electrocortical dysfunction in the EEG pattern during the asymptomatic interval period. These abnormalities were first described by Berger,[1b] subsequently by Gibbs, Davis and Lennox,[37] and also by Jasper and Nichols.[65] More recently, much subsequent

work has corroborated these findings. Particularly characteristic seems to be the occurrence of slow 3 to 4 cycle per second (cps) waves of moderate to high amplitude, appearing at random or in short series; at intervals, they may suddenly appear in a burst of serial activity for one or more seconds, and then abruptly give way to the more regular pattern of the rest of the record. Because of this finding, Gibbs and Lennox have referred to the convulsive states exhibiting this phenomenon as a "paroxysmal cerebral dysrhythmia." They have also described a "wave and spike pattern," recurring at a frequency of about 3 cps in serial activity as being pathognomonic of petit mal epilepsy, and support for this view was later given by Jasper and Nichols.[65] Gibbs and Lennox[66] further report that they never have seen a definite clinical petit mal seizure without coincident appearance of the characteristic pattern. Occasionally, however, the "spike" does not accompany the "dome" during an actual minor seizure, even when frontal leads are employed, and because of this, Jasper and Hawke[67] believe that the spike and slow wave represent independent components of the epileptic discharge. In most cases, the EEG disturbance is more or less generalized over the entire cortex, but as previously pointed out by Gibbs and associates,[66] it is usually most pronounced over the anterior regions. In view of this, they expressed the belief that the frontal lobe is more intimately connected with the source of the pathologic electrical activity associated with petit mal than any other cortical area accessible from the surface of the head. Hyperventilation for a period of one to two minutes usually increases the abnormality of the record, as already pointed out by Berger,[1h] Gibbs and associates,[37] and Jasper and Nichols.[65] Very frequently, prior to hyperventilation, one obtains a record which could not be classified definitely as pathological; and only upon hyperventilating the patient, are the slow potentials brought out in the record. In this connection, Jasper and Nichols[65] have stated that hyperventilation may be used to reveal a latent pathological condition or a "vulnerability" of the cortex to epileptic discharges, even though a seizure is not induced. Hyperventilation for a period exceeding one to two minutes should be avoided since in normal subjects prolonged hyperventilation may produce slow, random waves in the electroencephalogram.[37] It is of interest that

some convulsive states, apparently initiated by a severe trauma to the head, or associated with a previous history of encephalitis, antedating the convulsive attacks, exhibit electroencephalographic features, during the interval asymptomatic period, which are not distinct from those obtained in convulsive states of the cryptogenic or "idiopathic" variety. Jasper and coworkers[60] have reported activity resembling that seen in petit mal epilepsy in a number of cases subsequent to an injury to the head. Williams and Gibbs[56] also have reported the existence of widespread abnormal waves characteristic of epilepsy in a number of cases examined from five months to 12 years following a head injury. In some of these patients, a local focus of slow waves was evident, establishing a condition of "focal epilepsy" where a localized region in the cortex acts as a "trigger zone" and induces a focal or general seizure. The "seizure waves" may appear to begin in some particular area before spreading throughout the rest of the cortex immediately preceding an attack. The methods in use for localization of such regions have been described by various investigators.[63, 66, 68, 69] Golla and associates have described the presence of single foci with "mirror" foci in corresponding regions of the opposite hemisphere, particularly in young children and early cases of epilepsy. He also notes multiple foci in individual cases, in addition to shifting foci. No apparent relationship exists between the occurrence of multiple foci and the degree of dementia in epilepsy. It is possible that the localization of a focus in certain cases by the EEG might provide an indication for surgical removal of that portion of the cortex, particularly if the local abnormality is due to an underlying histopathological change of the type described by Penfield.[70] If the electrocortical dysfunction is distributed over the entire surface of the cortex, with, however, the greatest degree of abnormality confined to the anterior regions of the brain bilaterally, then it is likely that surgery will be of no great value. Lennox has described "one or two" such cases (discussion[70]) where frontal lobectomy was resorted to without the subsequent disappearance of the convulsive seizures. There appeared to be, in these cases, a shift or "metastasis" of this region of greatest EEG abnormality to some other region posterior to the surgical wound.

Of further interest is the finding by Gibbs[71] of EEG abnormali-

ties in cases described as "psychomotor epilepsy" and displaying such symptoms as involuntary tonic movements, "unpleasant outbursts," or sudden temporary personality changes, which the patient may be completely amnesic to after the attack.

Certainly, the diagnosis of "true" convulsive states of various types has been made more definite and more certain by the use of the EEG, and a new and apparently valuable approach to the study of convulsive disorders has been made. Fig. 5 illustrates various types of EEG patterns in epilepsy.

2. *Problem Children.* Electroencephalographic abnormalities in a relatively high percentage of behavior disorders (68 to 80 per cent approximately) have been reported by Jasper and coworkers[65, 72] Strauss, Rahm and Barrera,[73] Lindsley and Cutts[74] and others. The abnormality consists mainly in the appearance of slow abnormal potentials of from 2 to 7.5 cycles per second, occurring at random or in "bursts" of activity in which the slow potentials appear in a continuous series for a number of seconds at interrupted periods. This abnormal activity is particularly increased by hyperventilation. In addition to the slow waves, there is also frequently encountered a disorganized type of rhythm with irregular wave pattern forms. In view of the well-known "instability," however, of the EEG patterns in normal children and the possibility of "abnormal features" which are frequently present in the electroencephalograms of clinically normal children even past the age of 10 or 12, it is likely that further control series will have to be done before any final evaluations can be placed on the EEG findings in the behavior disorders. Nevertheless, the significance of these observations may perhaps become more apparent by the results of subsequent investigations attempting to determine whether any significant correlation exists between the possible abnormalities in the EEG pattern and the possibility or degree of recovery from the behavior disorder. If such correlation can be found, the brain wave pattern may become an important prognosticating agent. The relationship between electroencephalographic and pneumoencephalographic findings in these cases has not as yet been established or clarified, nor has there been any definite correlation as yet discovered between the character of the symptomatology and the pattern of the EEG, so far as the writers are aware. At

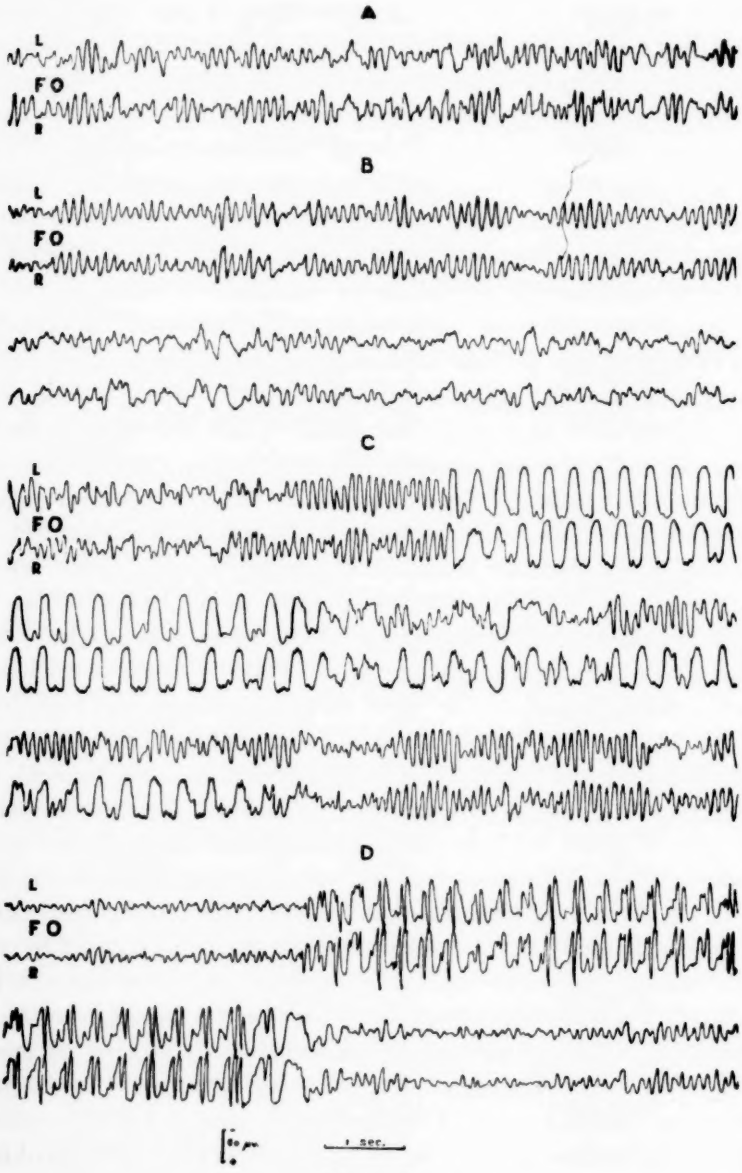

Figure 5

Various types of "convulsive" patterns obtained from cases diagnosed as "idiopathic" epilepsy.

A. Relatively high voltage activity, with the random but frequent appearance of slow waves.

the present time, such investigations are being conducted at the Rockland State Hospital by Drs. Goldensohn and Clardy.

Because a number of the EEG patterns in the behavior disorder group have closely resembled those obtained in convulsive states, they have been considered by some as representing a condition of psychomotor epilepsy[74] or as signifying an "epileptoid" personality.[73] Lindsley and Cutts[74] have stated that behavior problem children exhibiting electroencephalograms with a high incidence of 2 to 5 cycle per second waves have "convulsive tendencies," and that the brain wave patterns in these cases are suggestive of subthreshold convulsive activity. It is the writers' impression that such interpretations are possibly somewhat premature, inasmuch as similar EEG patterns have been found in so many other conditions. It might be emphasized that, in this connection, similarities of response do not always imply identity of causation.

3. *Mental Deficiency.* Although a number of such cases exhibit certain characteristic histopathologic features; as a class, there are no constant, definite demonstrable lesions which are common to this group as a whole. So far as we can determine from the literature at the present time,[1b, 1d, 30, 74, 75, 76] no specific EEG pattern is characteristic for any specific type or grade of mental deficiency. Cases exhibiting various features such as cerebral atrophy, or abiotrophies, or microcephalies, may show either generalized or localized abnormalities in the brain wave record, depending, of course, upon the character of the brain pathology. On the other

B. The first recording of the FO leads on the left and right sides were taken while the patient was perfectly quiet in the recumbent position, eyes closed, but wide awake. The record appears to be a normal one. The next two lines of recording illustrate the pattern obtained after 20 seconds of hyperventilation of the same patient. Note the frequent slow waves, and the general irregularity of the pattern.

C. Appearance of a continuous series of slow waves (3 cycle per second) during a petit mal attack. Patient remained perfectly quiet during this attack. Note the rather sudden appearance of the slow waves, and the rather abrupt termination of the series, although in this particular case, they persisted for a longer period on the right side. This pattern has been referred to as "a paroxysmal cerebral dysrhythmia."

D. Another type of a "paroxysmal cerebral dysrhythmia" occurring during a petit mal attack in which the patient remained entirely quiet in the recumbent position during the attack. This is one form of a "spike and dome" pattern.

hand, many cases of mental deficiency exhibit what appear to be perfectly normal patterns.

Investigations in mentally deficient individuals are being carried out chiefly by Kreezer of Cornell University, who has been studying the relationship, if any, between different levels of intelligence in certain types of mental deficiency states and the EEG. Significant correlations were found of intelligence level with alpha index and alpha wave amplitude, but not with alpha frequency, in the Mongolian type of mental deficiency, in the sense that as the intelligence level increased, the incidence and the amplitude of the alpha waves increased.[77] Some other evidence gathered thus far by Kreezer[78] in a group of subjects who do not belong to any of the special clinical types of mental deficiency, but for whom there was evidence that the mental defect was familial in character, suggested a significant relation of the intelligence level to alpha frequency with increasing mental age level, but not to the alpha index or to the alpha amplitude as noted in the Mongolian type of mental deficiency. Further studies in certain homogeneous groups may possibly aid in establishing a relationship between intelligence and certain physiological features of the cortex, as was so well pointed out by Kreezer.

4. *Psychoneuroses.* Thus far, the EEG does not offer much clinical aid in the study of the psychoneuroses, with the possible exception of the conversion hysterias, particularly in those cases of hysterical blindness. A visual stimulus of at least moderate intensity produces, in the subject with normal vision, a prompt diminution or disappearance of the alpha activity for a temporary period. By utilizing this procedure, one may thereby possibly determine whether visual stimuli are reaching the optic centers and the cortex, and electroencephalography may, therefore, be a useful and practical procedure in differentiating between true and hysterical amaurosis. The EEG may also be a useful "weapon" in differentiating hysterical convulsive states from the "true" convulsive state, or from convulsions produced by cerebral histopathological changes. Unless some other complicating features are present, the brain wave pattern immediately following a hysterical "convulsion" exhibits no pathological alteration as is observed immediately following an actual convulsion. In cases of hysterical anes-

thesias, the EEG may conceivably be of some aid, since, in a normal subject, tactile or painful stimuli applied for the first time usually alter the EEG pattern by diminishing the voltage and the incidence of alpha and beta waves.

No definite correlations have as yet been reported so far as we know, between the pattern of the EEG and the symptomatology of the various neuroses.

5. *Psychoses.* A number of studies have been reported of EEG findings in psychotic patients and there appears to be substantial agreement, in that no constant deviation from the "normal" is characteristic for any of the psychoses. Berger[1b, 1f, 1g, 1k] and Travis and Malamud[79] have reported essentially normal records for a group of schizophrenic patients, although Berger, in a number of his patients, found a relatively low incidence of 10 cycle alpha rhythm. Lemere[80] emphasized the "poor" alpha rhythm in his group of schizophrenic patients, and compares these records to those of apparently normal subjects exhibiting a similar "poor" alpha rhythm and characterized by a schizoid personality.[81] He further contrasts these records with those obtained in the manic-depressive group, where "good" alpha rhythms were noted. However, both Lemere and Berger found the electroencephalograms of the manic-depressive group to be well within the limits of normal, as a whole, regardless of the phase of psychosis, with the exception that Lemere noted the occasional occurrence of slow waves in the more severe cases.[82]

Hoagland and associates[26] likewise report no special brain waves in schizophrenic patients which are qualitatively different from those found in normal persons. They describe, however, a quantitative measurement of the records called the "delta index" which they feel bears close relationship to the clinical improvement or relapse in the individual patient. This finding has not as yet been generally corroborated or accepted.

Other investigators[83, 84, 85, 86] have agreed that no definite pathological pattern characterizes schizophrenics, although frequently they have found a diminished alpha incidence and a relative increase in the faster frequencies. P. A. Davis notes,[87] however, that although the electroencephalograms of patients in a mental hospital cannot be distinguished from the "normals," they neverthe-

less reveal less "stability" of pattern, with an increase in the irregularity and asynchronization of waves in general. In addition, there appears to be a breakdown in the normal distribution and relationships of the rhythm from one part of the brain to another, as compared with the findings in normal individuals.[20, 88] Davis further describes four main types of EEG patterns obtained in the schizophrenic group and believes that the "most normal" records from this group are those "carrying the diagnosis of paranoid schizophrenia."

Some investigators[87, 89, 90] have reported EEG patterns in a few schizophrenic patients which resembled those obtained in convulsive disorders. On this basis, P. A. Davis expressed the opinion that schizophrenia and epilepsy are "by no means mutually exclusive," and that the difference between the one and the other may be only a matter of degree. Schizophrenic cases exhibiting these "convulsive patterns" are described as being mainly of the catatonic variety, frequently having a history of catatonic stupors and excitements in the hospital, and whose behavior on the hospital ward is unpredictable. Their own results thus far have been too small to warrant any definite opinion by the present writers; but at this time they hesitate to draw any comparison between schizophrenia and epilepsy on the basis only of the EEG. It is their impression, further, that investigations along these lines may not be very fruitful, since it appears rather difficult, for example, to attempt to correlate a special type of neurophysiological disturbance as evidenced by a certain type of EEG pattern with so heterogenous and ill-defined a condition as schizophrenia. The symptomatology varies markedly from time to time, and from patient to patient, not only in schizophrenia but in other types of psychoses. It is possible that these investigations might be of greater significance if one first attempted to establish a relationship between the electrophysiological state of the cortex as reflected in the EEG and the prominent individual symptoms exhibited by the patient, rather than with the general clinical diagnosis of the disorder. This was previously emphasized by Davis and Davis[91] and by D. Ewen Cameron (discussion[27]).

Perhaps the greatest value of electroencephalography as a routine procedure in psychiatry, at the present time, is in its useful-

ness in determining the presence of structural organic changes in the brain, such as tumor, where such changes had not been previously suspected in patients exhibiting only psychological and no definite abnormal neurological symptoms.

Other Uses of the Electroencephalogram

The EEG lends itself to many uses other than those which have already been described. Various physiological states of the body, particularly sleep, have been extensively studied. Loomis, and his coworkers[92] have conducted numerous studies on the brain waves obtained during sleep, and on this basis have delimited various stages of sleep.

The electrophysiological effects of many drugs in various conditions have been studied and correlated with physiological changes occurring simultaneously in the subject. In the therapy of convulsive states, and even in primary behavior disorders of children, it has often been noted that the clinical improvement in the patient receiving medication tended to parallel the "improvement" in the brain wave record. If the clinical state remained unchanged, or grew worse, then the EEG pattern often maintained the same degree of abnormality or grew "worse" correspondingly. This might prove to be of some importance in the evaluation of various types of therapies in certain disorders. Further investigations along such lines are certainly well indicated.

The fields of genetics and eugenics do not remain unaffected by the development of electroencephalography. Some have maintained that individuals exhibiting brain wave patterns suggestive of a convulsive disorder, whether associated with the clinical features of epilepsy or not, should not intermarry, since the offspring would, in a high percentage of cases, be epileptics. In connection with this, one may note the findings of Strauss, Rahm and Barrera,[93] Lennox and coworkers,[94] Löwenbach[95] and others that the siblings and parents of persons with clinical epilepsy who do not themselves give any clinical indications of the disorder whatsoever, show a much higher incidence of abnormal brain wave patterns than do so-called normal individuals unrelated to any epileptic person.

The study of the genetic factors involved in the inheritance of the various electroencephalographic patterns has been initiated by Davis and Davis,[23] Gottlober[96] and others. The observation that identical twins exhibit identical or almost identical alpha frequencies[23] may possibly lead to the elucidation of hereditary factors associated with other characteristics which might first be correlated with alpha frequency.

Since the EEG in all probability is an index of the electrophysiological status of the cortex, it may reasonably be assumed that the brain wave record may find its place in any or all of those activities, experimental or clinical, where some such objective index is desirable. In this respect the method is being utilized at the New York State Psychiatric Institute and Hospital at present in a study of various forms of "shock" therapy in mental disorders.

Summary

A description of the electroencephalogram, of some of the important features related to it, and of a number of its clinical applications has been given. It should be fully emphasized that the electroencephalogram is not an indicator of individual clinical entities—with the possible exception of petit mal epilepsy—but that it is related primarily to the electrophysiological state of the cortex. This state might be altered in a similar degree by different conditions, whether they be essentially histopathological or purely physiological alterations in the cortical tissues. If the EEG abnormality is found to remain localized particularly to any one region over the underlying cortex, then there is probably more likelihood that the disturbance is the result of an actual structural change in the cortical tissues in the vicinity rather than the result of purely neurophysiological changes without structural organic disease. However, many exceptions to this statement exist.

In its correlations with different normal and abnormal states, the interpretation of the electroencephalogram must remain essentially empirical, until the exact basis for the production of the different types of brain rhythms and patterns has been established. This does not preclude the development of important, practical and useful correlations, but it should act as a red signal to hasty and premature conclusions which might be drawn on the basis of the

occurrence of certain types of EEG patterns in various clinical conditions. In widely different clinical states, certain close relationships are thought to exist by some individuals because of the occurrence of very similar EEG patterns. The writers are somewhat averse to this attempted grouping of different clinical syndromes purely from electroencephalographic analysis and interpretation; this might be analogous to an attempt to consider as fundamentally similar all conditions which produce a rapid pulse. The rapid pulse is an indication only of a rapidly beating heart. Although the interpretation of an electroencephalogram cannot be highly specific in its clinical correlations at the present time, it should preferably be made only in the light of a careful clinical history and examination of the patient.

The writers remain firmly convinced that electroencephalography should be utilized as a routine procedure in the practice of neurology and psychiatry and particularly in the routine examination of State hospital patients, if only in virtue of three important considerations: (1) its value in localizing pathological lesions of the cortex, particularly neoplasms; (2) its immense aid in the diagnosis of convulsive disorders; and (3) the occasional discovery of structural pathology of the brain in patients presenting psychotic and neurotic syndromes, where no cerebral histopathology had previously been suspected because of the absence of neurological signs, or the presence of only slight neurological abnormalities which had passed unnoticed by the examiner.

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PSYCHOANALYSIS OF A CASE OF DEAFNESS

BY ARTHUR N. FOXE, M. D.

I. Introduction

If one made a careful investigation of the literature, one no doubt could find occasional instances of remarkable and sudden cures of deafness. They probably would be cases of individuals who suddenly had become deaf. Psychogenic influences upon hearing may be seen in everyday life. At a concert, the trained ear will hear many things that the untrained will not. The absent-minded pedestrian may not hear the rolling sound of a trolley car and may be startled by the clanging of a bell. The student, engrossed in his work, will hear no sounds of the outside world. Conversely, a pair of lovers will hear every cricket in the field, an anxious person will perceive quite distinctly every tick of the clock. In other words, the range of hearing may show varying retractions and expansions, gradual or sudden. Thus, one man tells the writer that on retiring he feels a click in his ear. At that moment, he can hear no sounds. In the morning, from awakening until about five minutes thereafter, he is relatively deaf until he hears the same click in his ear. The first thing he hears is the ticking of his alarm clock. Obviously, he has developed a mechanism to assist him to sleep. When it comes to grosser forms of deafness, and especially where there are organic changes present, the tendency to believe in psychogenic causation becomes less marked if not entirely absent.

The patient here presented, represents the common problem of a combined organic and psychic disturbance. A man of 37, he had developed a gradual deafness over a period of 32 years. At the age of five, he had had diphtheria, scarlet fever and measles at the same time. His ear difficulties began then. His deafness developed gradually until, when first seen for analysis, he could hear the writer only if he shouted at the top of his lungs. Even then he missed most of what was said—but gave the conventional answers to the conventional questions. He had a bilateral otitis media and chronic mastoiditis. The aural discharge was profuse and had

been so for a number of years. He had been advised by more than one doctor that the only thing that would help him would be a bilateral mastoidectomy.

It may be wondered how anyone could be so foolish as to attempt psychoanalysis in such a case. In the first place, it would have been directly opposed to sound surgical advice. In the second place, how can one analyze a patient who is deaf? There must be some communication, and the conventional analytic one is the speech of the analyst. The writer could not wear himself out shouting. But the patient had not come for analysis for his deafness; he had a problem in homosexuality. Not that all deaf persons are homosexuals—this man happened to be one. At the time, the writer hardly anticipated the factors that would be revealed in connection with his deafness and hardly would have advised against a mastoidectomy. This was a problem for the patient and the medical advisers he already had. In order to contact him about his other problems, the analyst resorted to the method of writing his observations on a scratch pad and letting the patient read them. One of the first things noted was that every time he read one of the messages and made the effort to understand, he would automatically place his finger or handkerchief to his ear as if he were cleaning his ear in order to hear better. Vision and hearing were, no doubt, in some way connected. Anyone who attempts to hear some one mumbling, for instance, will look more intently at the mumbler and at the same time cock an ear in the appropriate direction.

It was not long before it became apparent that there were definite emotional factors grouped around the hearing problem. With these leads, the analysis, at times, became centered around this problem. The gradual recovery of hearing and the healing of the ear became less and less surprising. The hearing defect comprised one of the patient's main character defenses. One may wonder why the body and mind should resort to so great a restriction as deafness; but when it is considered that the whole character of the patient had undergone unusual restrictions, one may see the deafness as part of the whole picture and yet with its own special origin. As a matter of fact, the deafness had many advantages. The writer has indicated that in everyday life there might be ad-

vantages in not hearing everything. The hearer, however, would not readily see how such a tendency could become so extreme. One who always heard well would also be unable to know the real disadvantages of not hearing. Therefore, the presentation of case material will be begun by citing what the patient found to be disadvantageous and advantageous in his hearing defect. His analysis extended over two and one-half years and required 515 hours. After 190 hours, his hearing had improved to the point where the analyst no longer had to communicate with him by writing. At the end of the analysis, he had a perfect restoration of hearing.

Before actually proceeding as outlined, one datum should be noted. This man's hearing had always been worse in certain situations, especially where he found himself uncomfortable or in some way pained. The best periods of hearing were when he found himself comparatively happy. In his instance, these periods of happiness were in connection with activities about which he was highly secretive. Inasmuch as his physicians never had questioned him about these activities—and as he doubts if he would have told them about them in any case—he also would have hesitated strongly to reveal that there were situations when he did hear so much better than ordinarily. This is mentioned because it might be doubted that the illness had organic origins; and it might be said that his case was exceptional. However, to the writer, it seems that—until further means are developed to unmask these problems—it is proper to ask how one is to tell an actual degree of deafness. Certainly, the apparent organic condition is no positive criterion of what has taken place in the field of function. In connection with his ears and doctors, this man had experienced much pain. This pain served a purpose with the patient. But because painful situations caused increased difficulty with hearing, he heard less when in the presence of a physician.

II. The Disadvantages of Not Hearing

The patient felt that, by limiting his interests and activities, deafness definitely increased his problems. It led him to take chances on what he thought he had heard other persons say. As a result of this, he would sometimes make a fool of himself. His hearing defect always gave him an uneasy feeling that he

might become completely and permanently deaf. Not hearing others led him to suspect they were talking about him. People would assume he couldn't hear at all and make alarming threats in loud voices. Some persons would laugh at him and ridicule him because he could not hear. He was limited in listening to music and other forms of entertainment. Deafness would irritate his employers and once cost him his job. He would be ashamed to enter into conversations. Not hearing had added to his difficulties in school as a child. The cost of getting various types of treatment was a constant drain. Inability to hear limited him in asking others for information. It restricted his friendships. It required an excessive strain of attention when he really wanted to hear something.

III. Advantages of Not Hearing

Not hearing, however, had given the patient an excuse for not doing well at school. He could avoid his father's angry shouting and get sympathy from his mother and sister. Not hearing would also give him an excuse for having disobeyed his father and mother. He would thus avoid a punishment. Others would tend to tease him less. He also would fail to hear criticism, threats, challenges and "bulldozing," and would easily avoid getting into fights or arguments. Deafness also served as an excuse for not doing assigned tasks that were unpleasant or difficult and also for not being very sociable. It helped ease periods of tension by permitting him to take his time, it made other persons stop their flow of talk, and, in general, helped him in critical situations. Inability to hear permitted him to ignore his father's statements, for his father disliked to repeat. It helped him out of situations where he felt bothered or bored. It aroused the interest of some persons who came to him, and he, therefore, did not have to go to people. He could avoid accepting responsibility for knowing secrets that otherwise might be told to him. Deafness also permitted him to keep secret many things about himself. At times people would have to shout at him or page him loudly. This would make him the center of attention and he would feel like a "big shot." He could avoid hearing unpleasant noises, obscenity, or the unpleasant truth. He could carry on his work uninterrupted by distracting sounds. Peo-

ple thinking him completely deaf would reveal things that he otherwise would never hear. He could avoid facing a person by turning his face to one side. His inability to hear gave him an opportunity for clowning and embarrassing others. He might be standing directly behind his father or some other person who was calling him. When he would look in a direction opposite to that from which someone was calling him, others would laugh; he would become the center of attention and would laugh as well. He could tease and anger people in similar ways. Deafness gave him the opportunity for a sexual indulgence. He would not hear the maid call him in the morning to awaken him, she would come to the room to shake him and find him unclothed. His not hearing well required others to speak loudly and this diverted suspicion from what was going on. If others did not speak loudly so that he could hear, they would have to bear the blame for what happened. With this difficulty in hearing other persons, there was a marked accentuation of hearing for mechanical noises at certain times. This would give him a decided advantage over other individuals.

After this array of data, the writer feels sure there will be agreement with the old maxim: " 'Tis an ill wind that blows no good."

IV. Aural Phenomena During Analysis

One of the first indications of an improvement in the patient's hearing was when he began to develop a greater interest in the radio. Soon after, he skeptically remarked, "I've been hearing a lot of things, but I don't believe all I hear." His progress was not to come without great doubt, dissatisfaction and, later, even aggression. Long before he heard well, he on one occasion was able to hear the ticking of a clock while intently listening to a broadcast of a highly notorious crime. At times his attitude toward his hearing was somewhat fatalistic, "I'll trust to luck."

In his ninety-ninth hour, a remarkable sequence occurred. For the first 15 minutes there was complete stillness in the office; and the writer had made no communication of any kind. The patient then said, "I have a feeling in my left ear as if it would blow out." He then made a wincing motion and said, "I just heard a sound as if a cannon were going off, and my ear began to breathe. This is the first time in a long time. I guess something is being done. How

clear everything is. How noisy this place is. I hope the ear stays open. I don't remember ever hearing so well." With this, the patient revealed much of the data which has been given. As he was able to hear better he was able to talk more freely. As a matter of fact, during analysis, his restriction in hearing and other character qualities, decreased inversely as his vital and sexual interests enlarged. Each improvement in hearing was accompanied by recollection of a series of threats or dangers he had experienced in connection with his ears or other parts of his body, together with the restraints that necessarily followed these threats or dangers. Thus with the incident just cited, he recalled the fear he had of a mastoidectomy, and the aural dangers of deep swimming. He also recalled that at 13, at a show, he had seen a cow with its horns clipped. It showed a purulent discharge. A man said it would never be cured. He felt the same about his ears. He was disgusted and also recalled the disgust others showed when they had to repeat things to him.

Later he began to have more hope and wished that his hearing improvement would not fluctuate so. He then began to develop severe stabbing pains in his head (121st hour). As these quieted, he recalled the great pain he had experienced as a child when doctors worked on his ears. He also recalled that one doctor threatened to cut another man's testicles out. The patient had taken this seriously. He recalls other threats in the field of sexuality. Here it is important to note a difference between his hearing defect and his organic ear condition. In connection with not hearing, he could see something of a balance of advantage and disadvantage. In connection with his organic condition, the pain, discomfort, and annoyance were so great that he could attach very little pleasure to it. To him, it always seemed as a site for punishment. Considering the original trauma of his father's threatening voice, it does seem that his ear became the site of his greatest punishments. The doctors who hurt him were the ones who threatened, endangered, and pained him. Secretly, he carried out his guiltful homosexual activities with relatively little fear, although fear did increase later in life as other interests were at stake. He had no want of homosexual outlet, and there was relatively little achieved through his ear.

He would stifle his resentment against doctors, as he did with his father; yet inwardly he was glad to see them thwarted, discomforted, and even angered in their inability to get him well.

At times, during analysis, his hearing would be worse. At such times, he also had a tendency to mumble. These periods were followed by outbursts of truculence toward many individuals he formerly feared. At first, he was a relatively timid person. When his hearing had improved considerably, he admitted that in earlier years he had often "faked" his difficulty in hearing or had at least exaggerated it. This is not surprising from what has already been said. He had found advantages in not hearing; and it was not at all remarkable that he should consciously utilize his difficulty as a secondary gain. It is only human to use every weapon at one's disposal in the struggle of life; any weapon one uses, however, is bound to produce repercussions. In a sense, one must wonder if voluntary efforts to make use of a difficulty may not really increase an already involuntary disability. With each new increase of this patient's hearing difficulty, friends and relatives would drive him to some new doctor who would repeat all of the testing and instrumentation he had gone through before. He always noted that his hearing was worse for about a week after any extensive ear treatment or after any unusually painful emotional experience.

The patient who malingers is in a situation that he feels requires such drastic measures. Often, only a thin thread of conscious awareness separates the malingerer from being the true possessor of that which he pretends he has. Failure in malingering may bring out the anlage of it. Success may make the malingering a habit, a character trait, and a screen for the underlying anlage or weakness. "Faking" is not uncommon. Recently, I heard one gentleman jokingly aver that at home he was deaf and could not hear his wife. In old New England, scolding wives were put in a ducking stool and dipped into the river. He had "ducked" his wife, in the modern slang sense of avoiding her, by ducking himself in the waters of not hearing. The writer's patient told him of a woman he knew who could not hear a thing in the house but had an uncanny sense of hearing if someone were in the back yard or at the front door. He, himself, while driving a car, might not hear the person talking beside him but could detect the escaping air from

a tire some time before the tire actually went flat. Others would be surprised at his ability in this respect. He also could tell when there were defects in motors, long before others could, in this same way.

Just before a noteworthy improvement in the man's hearing, and just prior to the time when the written method was discontinued, the patient recalled a period when he first came to the United States at the age of eight and a half. He recalled his original language. His inability to translate a word, however, represented the sharp partition that had been erected between two periods of his life. On this day, he spoke in almost a whisper. He then revealed that if he spoke louder he might lose complete control of his speech. Prior to coming to the United States, he had been a highly aggressive boy. After this hour, he became highly aggressive again, heard every remark that was made and had considerable difficulty in restraining his desire to fight. He was, for the time, oversensitive. However, he did restrain himself, with some assistance in interpretation, and managed for the first time to stand his ground and not to run away or avoid a major issue.

As he improved in hearing, and as pains left his ears, he began to develop difficulties with his teeth and pain in his jaws. The odors from his ears left him, and he had "bad" and sour tastes in his mouth. There is no doubt that these had preceded, in childhood, part of his ear difficulties. His early oral aggressiveness and tendency to be obscene had been controlled by many scoldings. It is through the ear that speech is controlled. His hearing defect was the sum of threats made to him for improper speech, as his ear disease was the representative of corresponding physical punishments.

By this time, in analysis, he closed his ears to nothing. Oddly enough, a friend of his used a popular expression without thinking, and said on one occasion, "There are times when one must close one's ears." He, however, had done this too much and now would have none of it. At first, voices and sounds confused him; but gradually he learned to master his various impressions and began to enjoy conversation and listening to music. The obscene speech he heard, at first shocked him; but he gradually became accustomed to it. For a while, humor left no impression upon him. It was only

much later in analysis, with other changes in his character, that he could laugh spontaneously when he heard something humorous. At first, sounds he heard disturbed him at work, but he soon became accustomed to these. He now described himself as "all ears." He described his ears as having come back to life.

Much later his "bad" taste in the mouth changed to concern over odor from his testicles. He connected this with his secret practices. Vital and sexual discomforts and pains had thus all shifted to his ears. Near the 400th hour he connected burning urination with a general feeling of rectal, aural and bodily clogging and dullness. He recalled that passing wind had always relieved a feeling of abdominal weight and had at times been immediately followed by better hearing. It was at this time that many phenomena seemed to arise in connection with his illness at the age of five. It suggests that periods of general illness, in which narcissistic reserves are widely distributed through the body, may be the momentous times for the development of displacement phenomena and subsequent fixations. In the patient's mind, he connected hearing, breathing, and rectal wind. After this phase in the analysis, he developed one or two colds but for the first time they did not disturb his ear or his hearing. He lost his fear of wetting his feet. He recognized how fantastic many of his attitudes had been and felt he had always been afraid to confront his real self. At times he actually felt regret that he could hear—but by now the real advantages of hearing were too obvious to let this disturb him. He began to develop a yearning for an ever-broadening aural experience.

V. Physical Features

During the analysis, this patient was under the care of two other physicians at one time, later under only one. One suggested mastoidectomy. The medical treatment throughout was of a very conservative type.

He never revealed to his doctor that he felt his other problems were involved with his ear condition. At times he wanted to; but there were patients about, and he never could summon enough courage to ask for an interview with others present. In general, improvement in hearing preceded any changes in the physical condi-

tion of the ear—as far as could be observed. No doubt there were gradual changes which could not be observed with our relatively rough instruments. As his condition improved, his ear became more sensitive to any kind of manipulation. This sensitiveness was most extreme at the time of recounting early childhood experiences. As his truculence appeared he became a little more truculent to the doctor, but in a "friendly" way. It is interesting to note that just prior to his analysis he was in danger of being involved in a serious situation and had expected some punishment. It was at that time that he had most seriously considered a mastoidectomy—as punishment and escape from a more severe punishment.

An important question now arises as to how much nerve deafness there actually was in this case. The writer is inclined to believe there was actual nerve involvement but with a better physiological set-up for conduction when in pleasant situations or, rarely, in situations of extreme tension. During intervals, this conductivity seems to have been diminished. Painful states decreased conductivity. Emotional factors certainly played a part. Also, it seems that nerve tissue is far sturdier and has more ability for self-repair than has heretofore been believed. Apparently, favorable conditions for such self-repair are necessary. There is some experimental evidence to confirm this. X-ray at the end of the treatment reported here revealed a residual mastoid sclerosis.

Certain helpful pointers for those who work on the ear may be gathered from this case. The ear should be treated gently, even though the patient doesn't wince. Ear patients should be questioned in some way to bring out the existence of any emotional problems. There should be an opportunity for private interviews. Some sort of questionnaire based on the material in this paper could easily be used. Patients should be advised of the confidential nature of communications. Eventually such questionnaires may be used by physicians in all organic diseases. That doctor will be the more successful who shows a real human interest in his patient. Doubts as to the method of therapy should not be expressed before the patient. Before instrumentation, one should determine how sensitive a patient is. As an ear heals, greater and greater care in instrumentation should be exercised.

VI. Special Phenomena

A. *Narcissism*

Deafness as has been seen, not only is a blow to the ego but has certain advantages as well. Around such a symptom, many factors center that ordinarily would be incorporated into the general character structure. The hearing defect of the writer's patient separated him from the world in many ways. It added definitely to a feeling he often expressed: "Life doesn't seem real to me." His hearing showed a number of interesting splitting phenomena. Mechanical sounds were heard better than human sounds. This depersonalization carried over into a more real interest in machines —and ability to handle machines better— than men. His hearing leaned heavily on the pleasure-pain principle with a fairly sharp demarcation between the two. This carried over differently in the organic sphere, in that the ear condition bore the great brunt of the pain. Earlier, a sharp fissure appeared between his understanding of English and his native tongue. Remarkably enough, in the earlier phases of his analysis he felt that the analyst was curing his hearing, but that his doctor was curing the ear.

B. *Auditory Ataxia*

This phenomenon of hearing a sound but not being able to locate it has already been mentioned.

C. *Fatalization*

A number of physical symptoms related to eyes, ears, skin and joints seemed definite evidences of sensitization or in its more general biopsychological aspects, fatalization. With the working through of each phase of his various illnesses there were new eruptions of vitality and sexuality. This follows the trend of thought that would give to the role of illness a restraining or binding aspect.

D. *Deafness*

This itself assumes some special aspects. It may be seen that deafness is not a simple issue. A failure to hear, when examined in all its aspects in connection with the individual and his relation-

ships to others, as well as his non-personal relationships, may prove to be relative rather than absolute. Even the relationship to the organic condition, in degree and even in order of development, may be the matter of a cycle, without one process necessarily always preceding the other. The origin of such a condition itself may depend on fortuitous factors.

E. *Malingering*

Malingering cannot be used as a scrap basket, but would seem to be a condition having its own psychological facets.

From the writer's experience it seems that observations based on these phenomena are not only applicable to this one disease, but, in varying degrees, to almost all illness.

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ELECTRIC SHOCK THERAPY IN STATE HOSPITAL PRACTICE*

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Electric shock treatment was devised three years ago. Brief, early communications concerning technical problems were made by several workers before they had sufficient material to evaluate results. The work on which this paper is based, was performed primarily to determine the clinical value of the method. To obtain a preliminary impression in this respect, the writers used the material of a large institution—the Pilgrim State Hospital—and selected patients who were as typically representative as possible of the different syndromes. Special attention was paid to questions peculiar to State hospitals. The technique employed was the original one of Cerletti and Bini[1] as described in detail by Kalinowsky and Barrera[2] earlier in this journal.

The description of the technique, reported with little variation by Almansi and Impastato[3] and by Gonda,[4] will not be repeated; but a few additional points will be noted here. The voltage used for any single application is dictated by the convulsive threshold of the patient at that given time. That threshold increases considerably during the course of treatment. After the first convulsion has been obtained, the aim is to produce a generalized seizure with each subsequent application. Wider experience furnished certain rules for accomplishing this. After the first convulsion, there is a constant increase in threshold of five to 10 volts. Therefore, 10 additional volts should be given routinely in the treatment subsequent to the first seizure. After four treatments with this voltage one usually encounters an increasingly longer latent period, and will be obliged to add another five volts. Thus with greater practical experience, a petit mal is obtained less frequently when a grand mal convulsion is desired.

Apparently, there is no damage to be feared from the current itself. A simple consideration makes it clear that the current actually reaching the brain is only a small fraction of that applied to the skull. Experience with electrical stimulation on the exposed brain has shown that a generalized seizure in man is obtained with

*Read in part at the downstate interhospital conference, April 17, 1941, at the New York Psychiatric Institute and Hospital.

a current ranging between five and 10 milliamperes. The convulsive threshold of the brain is, of course, the same in electric shock treatment. Readings of 500 or 1,000 milliamperes during the procedure mean, therefore, that by far the greatest part is lost in penetrating the tissues; only one one-hundredth or less, may reach the brain. This clinical conclusion was recently confirmed by an electrologist (Plesset) who calculated from purely technological considerations that only one one-hundredth of the current applied to the skull can reach the brain.

Structural changes, which probably occur, are better attributed to the convulsion itself, not to the stimulus that produces the convulsion. Most workers, however, are not in favor of using more than 135 volts. The writers use the apparatus of the Rahm Instrument Company, fed by current from a relatively weak power plant. This provides not more than 130 volts. Certain workers employing different techniques need considerably higher voltages. However, there cannot be much doubt that all investigators apply the same amount of current to the brain itself, because all step up slowly to the threshold where a convulsion occurs in the individual patient.

The writers' lowest current necessary to produce a convulsive seizure was 60 volts. Their highest—130 volts, applied for 0.1 or 0.15 seconds—was enough to produce a grand mal attack in almost all cases, even when the convulsive threshold had steadily increased during a long series of applications.

Only in a few patients, was it difficult to obtain a fit at the end of a course of treatment. These were females, and females generally have a higher threshold than males. There are various means of obtaining seizures in such patients. They include: 1. Water enrichment of the body. This idea came to mind when an aged, emaciated and dehydrated woman with an extremely high threshold responded, after two convulsions, only with petit mal attacks—even with the highest voltage. In accordance with Temple Fay's[5] conceptions and McQuarrie's[6] pitressin water test, the following procedure was found efficacious. The day before the electric shock treatment, 1 cc. of pitressin was injected in the morning and in the evening; and as much fluid as possible was given during the day. On the day of treatment, two injections of 1 cc. of pitressin were given at short intervals during the morning. In all cases

where an antidiuretic effect with pitressin was obtained, the treatment led to a convulsion with a voltage which had been found insufficient without this preparation. 2. Another way to obtain a seizure is to interrupt the treatment for at least two weeks when the threshold has become too high. Such intervals lower the convulsive threshold, and the applications again become effective. 3. The simplest way is to give two stimuli, one immediately after the other. Obviously, a certain summation occurs. The procedure was successful in all instances; but it was noticed that in this method the dosage cannot be decreased by more than five or 10 volts.

These technical maneuvers enabled the writers to give a full course of treatment in all patients without exception. This makes electric shock undoubtedly superior to other convulsive treatments, in which even the most skillful physician will occasionally encounter cases where intravenous injections are not feasible or in which patients do not respond to usually effective dosage.

It has been said that the selection of the writers' patients was made largely from the viewpoint of evaluating the method. Clear-cut cases of the different disorders were chosen. In all instances, the case record was reviewed, the patient was reexamined and the diagnosis and prognosis were discussed in conference with the clinical director prior to the treatment. Doubtful cases were excluded in order to better evaluate the results obtained. Deliberately, both acute and chronic cases were taken in equal numbers. No patient was rejected, however bad the prognosis, during this first period of trial. In this way, it was expected to obtain a rather definite idea of the indications for the treatment in a relatively short time.

In this series, 102 patients at the Pilgrim State Hospital have received treatment or are still under treatment. In addition, 56 chronic, regressed individuals received what the writers call "symptomatic" treatment, which will be discussed later. Of the 102 cases with full courses of treatment, only 65 will be discussed here. They are selected because at least two months have passed since their courses were completed. This preliminary report can deal only with results at the end of treatment. The facts that followups are, thus, impossible and that the groups of the various psychoses are rather small, are realized fully. However, the uni-

formity of results within the various groups is such that certain conclusions as to possibilities and limitations of the method may be permitted.

The results are classified under three categories: unimproved, improved, remissions. In the group of remissions, the much improved and recovered cases are combined. The differentiation between the recovered and much improved is always arbitrary. There are strong objections to the term "recovery" in diseases where there is no evidence that a relapse will not occur within the next hour, or after some years, or never. In evaluating a material where no followup for a longer period is yet possible, it is still less justifiable to speak of recovery. A remission was obtained, the writers thought, when the patient showed no evident psychiatric symptoms after treatment, had insight therefore, had regained his prepsychotic personality and was able to adjust himself to extramural life.

In accordance with experience in other convulsive treatments, the best results were obtained in the affective disorders. The manic-depressive group was represented by 12 cases. Depressions numbered five; all are in full remission and paroled. This corresponds to what was seen by Bennett[7] and others in pharmacological convulsive therapy. Fewer reports have been made of results in manics. An attempt was made to obtain a group of pure cases of this syndrome—which is rare if diagnosed scrupulously. Seven typical manics were selected. Of these, five showed remissions and were paroled. One of the five relapsed. Of the other two, one is improved, the second unimproved. It may be said that the results in these manic-depressive reactions were eminently satisfactory. Although spontaneous remissions characterize the manic-depressive psychosis, it was obvious that the process in these cases was "broken up" by the treatment. A definite change in the mental picture was almost always obtained following the third or fourth treatment. A slight hypomanic state usually followed recovery from a depression. The analogous phenomenon was seen, though less constantly, in manics who appeared slightly depressed for a short time after recovery. These patients, however, appeared stable again a few weeks after the change in the mental picture had

set in. The uniform results show that at least considerable abbreviation of the period of hospitalization was gained.

With involutional melancholia, an equally favorable outcome resulted. Six patients were treated and came to full remission. The results appear all the more spectacular because even a long duration of the disease did not retard the prompt response to treatment. The material at Pilgrim contained a case of four years' duration. Another patient had been hospitalized for three years, was mute and needed tube-feeding when she came to treatment. She required the same number—four treatments—to bring her out of her stupor-like condition, as did all cases of manic-depressive psychosis and involutional melancholia. In both groups, however, treatment was continued until a total of 10 applications had been given.

Involutional psychosis of the paranoid and mixed types is discussed separately, because, paranoid cases in particular have quite a different prognosis from involutional melancholia. They are considered by many psychiatrists as a discrete group, perhaps related to schizophrenia. The writers' experience with this group gives strong support to that concept, when favorable response in involutional depressions is contrasted with the unfavorable results in these paranoid involutionals. Five involutional paranoid patients were treated. All but one remained unimproved. Each had a course of 20 treatments.

The principal interest in State hospital practice is dementia præcox. Forty-two patients received a treatment course of 20 generalized seizures, or 25 to 30 in cases where the results were poor despite an apparently good prospect. The most striking conclusion to be drawn from the Pilgrim State Hospital material was the difference in response to treatment of cases of short duration and of long-standing ones. This is in full accord with experience using other methods. Four categories were defined: patients with illnesses of less than six months; with illnesses of between six months and two years; with illnesses of more than two years' duration; and patients who fell ill many years ago but have had remissions. In the last group, it is misleading to date onsets to the times of the first psychotic periods and to group these patients with cases of many years' duration but without remissions.

Ten patients with dementia præcox of a duration of less than six months were treated. Of these, eight achieved full remissions; two were improved. Thus, all patients in this group were benefited by the treatment.

The second group, of cases with a duration between six months and two years, included 10 patients. Of these, two showed remissions; three were considered improved; five were unimproved. The considerably less favorable outcome in this group compared to the first is obvious.

The third group of 12 cases, with over two years' duration, contained no individual with a full remission. Only three were improved; and improvement took place upon a regressed level. One is paroled; and two are considered parole prospects. The remainder are unimproved.

Somewhat more favorable is the fourth group of old cases with histories of previous remissions. Ten patients of this group were treated. One came to a full remission; four were improved; and five were unimproved.

It is emphasized that of the 11 schizophrenics in whom remissions were obtained, all are paroled but one. The unfavorable figures in chronic cases correspond with statistics from other forms of treatment.

With reference to dementia præcox, the difference between the satisfactory results in cases of short duration and the constant and rapid decrease of the remission rate in cases of longer duration must be stressed again. This observation, first made with other treatment methods, cannot be stressed sufficiently. The writers feel justified in drawing conclusions from their small material, because they correspond exactly with those of workers who have divided their patients into the same four groups in reporting on pharmacological shock. Early treatment in physical illness like cancer and tuberculosis is one of the principal points of health education; and it is only in reference to psychiatry that this point in health education is still disregarded. Psychiatrists in State hospitals should insist upon stressing the need for early treatment because even therapeutically-minded physicians in the community and in private institutions frequently tend to wait, to see if there

will be spontaneous remissions of psychoses, before they start shock treatment. This delay determines chronicity in many cases and an unnecessary increase of State hospital population.

A discussion of other prognostic criteria, apart from the duration of the disease, will be postponed until a larger amount of material is available. It may be specified, however, that a psychoneurotic admixture in schizophrenics is a definitely unfavorable factor. Paradoxically, the greater the break with reality the better the result. This observation, made earlier in insulin treatment, was noted particularly by one of the writers who had the opportunity of treating two parallel series, one of State hospital material, the subject of this report—and the other at the New York State Psychiatric Institute and Hospital. There less acutely disturbed schizophrenic patients are available. It is felt that the State hospital group offers the better outlook for treatment, as far as schizophrenia is concerned.

The observation was also made that those patients considered unimproved, did not remain uninfluenced by the treatment. They were unimproved, it is true, so far as their content was concerned. It was seen, however, that most of the unimproved patients became at least quieter and more easily managed. It was, therefore, decided to treat chronic regressed patients in the most disturbed buildings. The change in the mental picture of patients under electric shock treatment is usually brought about after the third or fourth treatment. It was determined, therefore, to apply three or four treatments to the most disturbed, most destructive and most assaultive patients. These constitute the problems in management of the disturbed services. The sole aim was to modify their behavior and to bring about a symptomatic improvement with the least number of treatments.

Thus far, 56 patients have been treated in this way. Thirty-six have been in the hospital 10 years or longer. Three have been hospital residents for over 20 years.

Of the 56 treated, 42 responded favorably; and 14 were unchanged. Those who improved did so after the first or second grand mal seizure. Three, selected only for this symptomatic treatment, improved so much that the treatment was continued. These three were later approved for parole and have left the hospital. Of the

total of 42 improved cases in this group, 25 have relapsed to their pretreatment level. The duration of the improved period in these 25 patients has varied from a few days to a month.

One may be justified in saying that 75 per cent of the patients treated in this "symptomatic" series responded favorably, although the majority did not maintain their improved condition. In some of them, the improvement was sufficiently long to justify the attempts at treatment—all the more as one sometimes finds patients that maintain improvement and may be paroled after additional treatment. The saving in personnel, sedative drugs and clothing effected by such treatment is readily appreciated.

There were no complications. Fatal accidents did not occur. It may be added that the writers keep in touch with most clinics where electric shock treatment is performed and that fatalities have occurred nowhere. In two instances in the Pilgrim series, patients showed a delay in resuming breathing. Alpha-lobeline, metrazol and oxygen were kept at hand but were unnecessary in these cases. The cardiovascular system is apparently not essentially affected by electric shock treatment. The writers were obliged to work without an electrocardiograph. Despite this, they did not meet with any difficulty. A relevant report was recently published by Bellet, Kershbaum and Fuerst.[8] They found myocardial derangement electrocardiographically in insulin, less frequently in metrazol and only to a negligible degree in electric shock treatment.

Fractures and dislocations of the long bones did not occur. It should be said that in metrazol also they are now avoided by most workers.[9] Special attention was given to vertebral fractures which have been made the subject of a special study reported elsewhere.[10] The writers wish to emphasize that the first 60 patients were X-rayed routinely before and after treatment. No spinal fractures were found. This was because of manual hyperextension of the whole spine, with sandbags placed beneath the middorsal curvature.

Curare has not been tried, because electric shock treatment has —contrary to metrazol—a depressant influence on the respiratory center. Thus, it seemed hazardous to add to this central effect a peripheral paresis of the respiratory muscles. The avoidance of

vertebral fractures with purely mechanical precautions makes chemical methods unnecessary.

Transient impairment of memory has been seen occasionally. This symptom may last a few weeks but usually clears up shortly after the treatment has been finished. This memory defect should not be confused with the retrograde amnesia for the period just before, during, and following, the individual application. This constitutes a major advantage of the electric shock method, as, in contrast to metrazol, it excludes any disagreeable recollection of the treatment. An occasional occurrence is a short postconvulsive confusion with excitement until the patient regains full consciousness. This is rare, but, in a patient who exhibits it, confusion with excitement is found repeatedly with each application. These reactions are one reason why electric shock treatment is exclusively a hospital treatment. Ambulatory treatment is feasible, in view of the usually quick recovery; but it should be done only in a hospital setup.

The treatment is inexpensive, a fact which is stressed by all workers. Thirty or more patients may be treated in two hours by one physician. It should be added that patients regain full consciousness more rapidly than in other convulsive treatment procedures and usually report no discomfort afterward. Therefore, no additional personnel for supervision following treatment is required. These advantages might be stressed at a time when State hospitals face an increasing shortage of medical and nursing staff.

Electric shock treatment presents new possibilities for combining insulin and these convulsive treatments. Of the two possible modes of combination, it seems preferable to give hypoglycemic coma and electric shock on alternate days. One of the writers' patients who was treated with electric shock during deep insulin coma showed some respiratory impairment. This is unusual when insulin is combined with metrazol—a respiratory stimulant. It is, therefore, planned to treat a series of patients with the alternating method. So far, the writers have shifted only those patients uninfluenced by electric shock to insulin therapy, and vice versa. In both ways, they have been successful in isolated cases. This further strength-

ens their belief that electric shock is an enrichment of therapeutic equipment and that the various methods will complement each other.

Electric shock—like the other forms of shock therapy— may not be the ultimate solution of the therapeutic problem in the functional psychoses. All shock methods are, however, definite advances over those used hitherto in mental disorders, including psychological methods. The writers' final conclusion can only be that the early shock treatment of all new admissions to State hospitals is one of the most important measures for reducing the population of mental institutions.

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INDUCED HYPOGLYCEMIA IN THE MANAGEMENT OF OPIATE WITHDRAWAL

A Preliminary Report with Seven Cases

BY SIDNEY J. TILLIM, M. D.

In the treatment of addiction, the immediate objective is the removal of the conscious craving for the opiate. This can be accomplished in most instances—by the simple expedient of enforced abstinence—in about two weeks.[1, 2] Signs of distress, however, may be present for weeks, even months, in severe morphinists and heroin addicts. The period of active withdrawal is difficult and trying to the patient, yet it is an unavoidable preliminary to the institution of psychotherapy for a mental-emotional readjustment. Patients dread this period more than the ravages of the habit. At present, addicts submit to hospitalization for withdrawal only under special inducements such as social or emotional gain, inability to maintain their supply, or excessive tolerance to the drug—when satisfaction is no longer possible. Most addicts are uncooperative and are satisfied merely to have their requirements of the drug reduced. If a more effective method of alleviating withdrawal symptoms were available, it is likely that more promising patients would seek help. In its search for a better method of alleviation, the medical profession has brought forth many special treatments. Kolb and Himmelsbach,[2] and Biggam,[1] after an examination of the better-known "cures," conclude that they are useless, some being even harmful.

The present-day accepted treatment of withdrawal[1-2] is essentially symptomatic. Abrupt or rapid withdrawal is preferred over slow withdrawal. Yet Kolb and Himmelsbach state, "For addicts with strong habits abrupt withdrawal is cruel, dangerous and unnecessary." In the main, in treatment during withdrawal, reliance is placed upon sedative baths, occasional cold wet packs, a multitude of sedative and hypnotic drugs, glucose intravenously, and the substitution of opiates. This type of therapy is carried on for several days until the acute phase of the distress begins to subside. Those familiar with the treatment of addicts, particularly in private institutions where greater notice of patients' complaints

must be taken, will appreciate how time-consuming and disappointing it is. A special study of the problem by the New York Mayor's Committee,[3] in 1930, shows that hypnotics, sedatives and analgesics have no practical value; the condition of some patients is actually made worse by exciting "an ugly and unreasonable mental state." Symptomatic treatment leaves much to be desired if the addict is to be induced to seek help early, with the assurance of a system of care which will make his burden easier.

In withdrawal, we are dealing with a syndrome, a clinical entity, rather than a group of symptoms to be treated separately. This syndrome bears a striking clinical resemblance to an acute anxiety depression. Psychically there is depression, restlessness, anxiety, and ultimately apprehension, delusions and hallucinations. This picture is soon complicated by a train of vegetative symptoms. Successful management of the vegetative disturbances is possible by an effective control of the depression and the anxiety. The two clinical entities have in common also a moderate hyperthermia, faulty sugar metabolism, hyperglycemia, and an accelerated metabolism.[2, 4-6] The acuteness of the reaction in the addict may puzzle the casual observer in looking for the comparison, if allowance is not made for the fact that one rarely sees so cataclysmic an onset in an anxiety depression.

Recent successes with insulin as a sedative in acute psychic disturbances renewed interest in Sakel's[7-9] insulin treatment for withdrawal. He, apparently, was the first to use insulin for this purpose. He gave 80 units a day in divided doses for six to eight days, though occasionally much larger doses were given. The insulin was supplemented with moderately large doses of barbiturates and intramuscular injections of scopolamine. Digitalis was used for cardiac support, and he was careful to avoid hypoglycemic reacactions. His reported favorable results have been supported by some [10-12] and rejected by others.[13-15]

In the light of newer knowledge about insulin through the practice of shock therapy, a method of treating opiate withdrawal has been evolved which thus far has been highly effective in the control of symptoms. The material is not abundant; but the observations indicate encouraging possibilities for this therapy in the future. In the presentation of the cases all active medicants used during

the period of hospitalization are included, to point out the limited use—and even more limited usefulness—of ordinary sedative drugs. All cases were treated at the Long Island Home, Amityville, N. Y.

Case Material

Case 1.

A single man, aged 33, of obviously impaired personality, described himself as a popular lecturer and writer, and a recent émigré. According to the history he gave, his morphinism began in 1933. After a harrowing escape from a concentration camp, he underwent an operation for renal lithiasis and, several months later, an appendectomy. He said that long periods of convalescence, with a therapeutic need for morphine, led to addiction. He said his daily requirement was five to seven grains; two grains of morphine the first night in the hospital provided only four hours sleep.

Course in the hospital: The patient was admitted August 17, 1938, at 4:15 p. m.; he received morphine, 2 gr., at 8 p. m., and then paraldehyde, 3 dr., at 2 a. m.

First day: Insulin, 30 U., was given at 4:30 a. m., 20 U. at noon, 25 U., at 5 p. m., and 30 U at 3:50 the following morning. The day and evening were spent comfortably; the patient slept or dozed most of the time. During the night, he received seconal, 3 gr., at midnight and sodium amytal, 7½ gr., intramuscularly at 2 a. m. These medications apparently increased his restlessness and distress, without producing sleep. He slept only after the insulin was given.

Second day: Insulin, 20 U., was given at 9 a. m., 30 U. at 2 p. m., and 25 U., at 7:30 p. m. The patient was quiet, with little complaint all day. The highest temperature for the day was at 6 p. m., 101.6 °.; the pulse was 92, the respiration 28. For the night, he received sodium amytal, 6 gr., by mouth, and slept only one hour.

Third day: Insulin, 40 U., was given at 6 a. m., 30 U. at 2:30 p. m. and 30 U. at 8 p. m. The day passed comfortably, the patient was sociable and ate with good appetite. For the night, codeine, 1 gr., and sodium amytal, 6 gr., were given at 10:30 p. m. He was quiet but slept only three hours. The highest temperature—pulse—respiration reading for the day was at 6 p. m., 100.8°-76-20.

Fourth day: Insulin, 40 U., was given at 6 a. m., 30 U. at 10 a. m., and 30 U. at 3:30 p. m. The patient had a good day, spending several hours outdoors, interested in recreation activities. He had no elevation of temperature and during the night slept three and one-half hours with the aid of nembutal, 6 gr.

Fifth day: Insulin, 30 U., was given at 6 a. m. and 20 U. at 3:30 p. m. This also was a good day; the patient participated in diversion activities. He slept four and one-half hours with the aid of seconal, 6 gr.

Sixth day: The patient received only 30 units of insulin at 6 a. m. He was in good spirits and went to the movies in the village during the afternoon. For the night medication, he took barbital, 10 gr., at 8:30 p. m., seconal, 3 gr., at 10 p. m. and seconal, 3 gr., again at 1:30 a. m., yet slept only six hours.

Seventh day: No insulin was given; the patient was in good spirits. Because of urgent business, he spent the day away from the hospital in the company of an attendant. He returned to the hospital in the evening and slept five and one-half hours with the aid of barbital, 10 gr.

Eighth day: The patient arose in good spirits. He said that his presence in the city the day before had convinced him of his complete freedom from craving; and because of business urgency, he demanded his release from the hospital. He was discharged against advice.

Case 2.

A married man, aged 51, had been addicted to morphine for 14 years. While a soldier in the war of 1917-1918, he contracted syphilis. In 1924, he married a spinster, who has been oversolicitous and submissive to him. He soon began to complain of gastric pains, which were diagnosed as "crisis," and morphine was given. These pains grew in severity and frequency, requiring morphine several times a day. An old alcoholic habit was then completely given up. Seven hospitalizations for addiction have proved him a difficult and uncooperative patient. He had completely resigned himself to dependency on his wife's work and savings. His daily morphine was seven to eight grains.

Course in the hospital: Admitted May 27, 1939, at 9:45 p. m., the patient received morphine, ½ gr., and paraldehyde, 3 dr., in the course of the night.

First day: He received insulin, 30 U., at 7 a. m., 15 U. at 11:30 a. m., 40 U. at 2:30 p. m., and 20 U. at 2:30 a. m. the following morning. The day and early evening passed well; he had a good appetite. At midnight, he was moaning and retching, he had diarrhea and was trembling. The following medication, paraldehyde, 3 dr., hyoscine, 1/150 gr., and sodium amytal, 6 gr., successively between 10:30 p. m. and 2 a. m., did not ease the distress. After the insulin, he quieted but did not succeed in sleeping.

Second day: Insulin, 20 U., was given at 10 a. m., 15 U. at 11 a. m., 15 U. at 2:30 p. m., 20 U. at 6:30 p. m., and 25 U. at midnight. This was a diffi-

cult day for the patient. There were several excessive hypoglycemic reactions. The highest temperature—pulse—respiration for the day was at 6 p. m., 103°-80-20. In the early part of the night, paraldehyde was tried, in an effort to control the noisiness and restlessness, but without appreciable benefit. After the insulin at midnight, the patient slept four and one-half hours.

Third day: Insulin, 30 U., was given at 8 a. m., 15 U. at 10 a. m., 30 U. at 2:30 p. m., 20 U. at 4:45 p. m., and 30 U. the following morning at 2 a. m. The patient was restless through the day but quiet, and took adequate fluid nourishment. For the night, he received sodium amytal, 6 gr., and hyoscine, 1/100 gr., without obtaining sleep or rest. One hour after the insulin injection, he was asleep. At 4:30 a. m., he awakened in diaphoresis and complained of thirst. He took orange juice, 10 oz., and returned to sleep until awakened for breakfast.

Fourth day: Insulin, 50 U., was given at 8:30 a. m., 40 U. at 3:15 p. m., and 30 U. at 3 a. m. the following morning. At noon, the patient suddenly passed into stupor with rapid and irregular pulse. Digitalin, 1½ gr. was given and he was forcibly awakened to drink sweetened orange juice. He ate a good lunch shortly afterward. At 5 p. m. he experienced a similar hypoglycemic reaction, and glucose, 10 gm., was given intravenously. He ate a good supper. Despite the reactions, this was the most comfortable day thus far. For the night, sodium amytal, 12 gr., failed to produce sleep or rest until after the insulin was given. The patient then slept four hours before breakfast time.

Fifth day: Insulin, 50 U., was given at 9:45 a. m. and 30 U. at 3:30 p. m. The patient ate all meals, was sociable and went outdoors in the afternoon. For the night, barbital, 5 gr., and sodium amytal, 6 gr., gave six and one-half hours sleep.

Sixth day: Insulin, 20 U., was given at 11 a. m., and 20 U., at 4:30 p. m. The patient had a good day, participated in all activities of his group, slept well without sedative.

Seventh day: This day was much like the previous day; no insulin was given.

Eighth day: Depressed and surly, the patient complained of leg pains and of vomiting, which was slight and self-induced. These he insisted were tabetic symptoms; yet without special treatment, he continued to participate in activities and slept without the aid of sedatives.

Ninth and tenth days: The patient continued to grumble about nausea and pain in his legs but was less depressed and slept well without sedatives.

Eleventh day: The patient induced his wife to take him home, and was discharged against advice.

Case 3.

This patient, aged 39, the wife of a physician, had been addicted to morphine for the past 10 years. Prior to this, she had been addicted to alcohol. She had been married 20 years to a man many years her senior and had one grown daughter. Immediately preceding her addiction, she had undergone three laparotomies in short succession. During the intervals, she required morphine frequently for various abdominal complaints. For the past six years, her excuses for requiring the opiate were sinus and rheumatic pains which only morphine relieved. In March, 1939, she went to Florida for a "reduction cure," to which she submitted with the help of heavy drinking. After six weeks, she had her first day without opiate; and she began the trip home to New York State by automobile. She had driven only about 200 miles when the craving became irresistible, and she could not continue until relief was given. Since then her daily requirement had rapidly increased from two to six grains.

Course in the hospital: Admitted September 18, 1939, at 3:15 p. m., the patient was fearful and antagonistic.. The first night, she received morphine, 1 gr., and paraldehyde, 3 dr., which gave her four and one-half hours sleep.

First day: Insulin, 30 U., was given at 7 a. m., 40 U. at 2:40 p. m., and 60 U. at 6:30 p. m. The patient spent a relatively comfortable day, but was antagonistic and uncooperative. She slept two hours during the forenoon and slept three hours before midnight, with only one additional hour after receiving sodium amytal, 6 gr.

Second day: Insulin, 40 U., was given at 7 a. m., 40 U. at 3 p. m., and 40 U. at 8:30 p. m. The day was quiet except for one hour of histrionics with threats and abusive language during her husband's visit. She slept one and one-half hours in the forenoon and one hour in the afternoon. She slept one and one-half hours before midnight, and none afterward despite codeine, 1 gr., and seconal, 3 gr.

Third day: Insulin, 60 U., was given at 6:30 a. m., 50 U. at 2:15 p. m., and 40 U. at 8 p. m. Most of the forenoon the patient was drowsy, but she took a bath without assistance and ate a good lunch. At 2 p. m. she complained of pains in various parts of the body. One-half hour after receiving her insulin intravenously, the patient was mildly elated, joked with her nurse, asked if she might have lamb chops and baked potatoes. Later when visited, she asked the physician, "What did you give me? Pantopon? I felt relief almost immediately." The "constriction in the chest" and the "sinus headache" were "far in the background and very dim." There was some numbness of the hands and lips, but she did not mind this be-

cause she was otherwise very comfortable. She ate a good supper, then slept one hour. Restlessness and irritability returned about 8 p. m. The insulin soon quieted her without causing sleep. At 11 p. m., she took sweetened orange juice, and shortly after was asleep until 4 a. m. She then wanted a warm bath. After her bath and some fruit juice, she slept an additional one and one-half hours.

Fourth day: Insulin, 70 U., was given at 9 a. m., 40 U. at 8:15 p. m., and 20 U. at 2 a. m. The day was relatively comfortable; the patient bathed, ate three good meals, and had one and one-half hours sleep in the forenoon. In the evening she was irritable and demanded treatment for a "head-cold." After the insulin, she relaxed and slept until midnight. Between 2 and 3:45 a. m., she was talkative for a while, then gradually passed into a stuporous condition from which she was aroused to drink sweetened orange juice. The rest of the night, she slept quietly.

Fifth day: Insulin, 60 U., was given at 9:15 a. m., 20 U. at 2 p. m. and 60 U. at 8:45 p. m. Early in the morning, the patient complained of being "very sick," and demanded treatment of somatic symptoms. The insulin relieved all her symptoms, but an hour later she abruptly passed into stupor with hyperpnea, flushed skin and myoclonic activity. She aroused spontaneously in about 10 minutes. When seen some minutes later, she said, "I am so relieved. I was frightened for a moment." She was jovial, wanted to know what had happened. Had she fainted? She felt free of all discomfort. At noon she ate a good lunch. During the rest of the day, she was sociable. She read until 10 p. m. At 11 p. m. she drank some sweetened orange juice, then slept until 4:30 a. m. and rested quietly the remainder of the night.

Sixth day: Insulin, 60 U., was given at 7:45 a. m. and 11:30 p. m. The patient had a comfortable day, slept much of the time, and had a successful visit with her husband. Early in the evening she took sodium amytal, 6 gr., without attaining sleep. But after the insulin, she slept from midnight until 2:45 a. m., when she asked for orange juice (which was given) and slept again from 3:15 to 5:45 a. m.

Seventh day: The patient spent a comfortable day without insulin and slept five and one-half hours during the night after receiving seconal, 6 gr.

Eighth day: She received insulin, 50 U., at 2:30 p. m. The forenoon passed pleasantly; but in the afternoon she became irritable and unreasonable, demanded to see her husband immediately or to be released from the hospital. After the insulin, she relaxed, was apologetic for her conduct, pleasant and sociable. With the aid of seconal, 3 gr., and sodium amytal, 3 gr., she slept eight hours during the night.

Ninth day: No insulin was given. The day was passing comfortably when the husband visited her and she persuaded him to take her home, against advice.

Case 4.

This patient, a married man, aged 48, had been addicted to heroin seven months. A roomer in his boarding house had induced him to try a "shot" of the heroin he was using. His daily requirement rapidly increased. He wanted "a cure" because the cost of the habit had become prohibitive and the supply too precarious; and his family threatened to leave him if he did not give up the habit. He also had begun to show concern for his health, as he had lost 35 pounds during the period of addiction. Seventeen years ago, he had submitted to a "hyoscine cure" for morphinism, and had remained an abstainer until the present addiction. An attempt at self-cure two weeks before—by abrupt withdrawal—failed on the second day because he became too sick to carry on.

Course in the hospital: Admitted November 1, 1939, at 6 p. m., the patient was irritable and restless. At 9 p. m., he showed psychic and physical signs of withdrawal; he received insulin, 30 U. An hour later, his distress had apparently increased: He sat on the edge of his bed yawning, rubbing his eyes, made frequent trips to the bathroom, begged for relief. Insulin, 25 U., was given intravenously. One-half hour later he was reclining comfortably but stated he was "burning up." Soon he perspired and fell into a deep sleep for one hour. He awakened feeling hungry and consumed four slices of buttered bread, 16 ounces of fruit juice and 16 ounces of milk. He slept from midnight to breakfast time.

First day: Insulin, 60 U., was given at 8:30 a. m., 60 U. at 2:30 p. m., and 60 U. at 9 p. m. The whole day was spent comfortably; the patient was sociable and had a good appetite. Toward midnight, he became hungry and ate a substantial lunch, including sweetened fruit juice. He slept through the night until breakfast time.

Second day: Insulin, 40 U., was given at 9:30 a. m., 60 U. at 2:30 p. m., and 40 U. at midnight. The day and evening were uneventful; the patient was in excellent spirits and appetite. Toward midnight he became restless. After the insulin he rested, two hours later ate a good lunch, then slept until awakened for breakfast.

Third day: No insulin was given, nor any other medication. He spent an active sociable day and slept well at night.

During the remainder of his hospitalization, no sedatives or insulin were needed or given. After exemplary behavior for six days under close supervision, he was allowed parole on the grounds. This he respected for five days, then, apparently tired of inactivity, he eloped.

Cases 5 *and* 6.

These brothers, one aged 61, a divorced man, the other aged 65, single, had been addicts for more than 30 years—since the days when, "One could smoke the opium pipe for 25 cents—all he could take." Originally opium and morphine users, for the past 15 years they had been addicted to heroin. Their morphine requirement had become so high, one-half ounce a week for the two, that they could not afford the indulgence. At that time heroin was cheaper, and their requirement, grain for grain, was much less. The younger man had submitted to many "cures," including the Towns-Lambert treatment, hyoscine treatment, narcosan, and a "spit and sweat" cure. None of these were effective beyond the time he needed after their completion to acquire a supply of narcotics. The older man had never tried any cures. At the time of their admission, their heroin requirement was one ounce every two or three weeks. The international situation had severely reduced the smuggling of the drug; and they were obliged to rely on the cheap, diluted material peddled in the slums, described by them as "4 per cent stuff," of which they used two and three ounces a week, without being able to maintain personal comfort or efficiency in work.

For the past 30 years the two had lived together. At first the older man boarded with his brother; since the younger's divorce about 18 years ago, the two had kept an apartment. They maintained isolation from family and friends, and had no diversions except motion pictures and their addiction. They bought and kept their supply of opiates jointly. Physical regression was marked in both, but was more severe in the younger man. He was also the less stable of the two. They had lost much weight, the younger had declined from 190 pounds to 132 pounds, the other from 250 pounds to 157 pounds; both showed advanced signs of arteriosclerosis.

Course in the hospital: Both men were admitted February 9, 1940, at 7 p. m. Following, is an account of the younger man's course. At 11 p. m. he was restless, yawned, and rubbed his eyes frequently. Insulin, 30 U., was given, and at 11:45 p. m. an additional 25 U was given intravenously. Within a few minutes, the patient was perspiring freely and was relaxed. He experienced excessive diaphoresis, but he was free of the earlier distress. At 12:15 a. m. he asked for food; he dozed briefly before a lunch was given at 1 o'clock. After lunch the patient slept five and one-half hours.

First day: Insulin, 40 U., was given at 9 a. m., 40 U. at 3 p. m., 30 U. at 8:20 p. m., and 15 U. at 10:30 p. m. The patient slept approximately five hours during the day and three hours during the night.

Second day: Insulin, 40 U., was given at 6:30 a. m., 25 U. at 11:40 a. m., intravenously, 60 U. at 3 p. m. and 30 U. at 9 p. m. This was the only really uncomfortable day in the entire course. The patient refused breakfast, was nauseated and tried to vomit. He was excited, demanded to leave the hospital, said, "We can't make it, we're too old to stand much." Shortly after the insulin was given intravenously he became quiet, apologized for his remonstrances, and ate a light lunch at 12:30. Later he was visited by his son and said nothing about wanting to go home. At 4:30, he was in hypoglycemic stupor. During this state, lavage of the stomach was performed and much thick bile fluid removed. He was then awakened by 7 gm. of glucose given intravenously. Additional glucose was taken by mouth. He spent a restless night, but was quiet; he slept only one hour.

Third day: Insulin, 20 U., was given at 6:30 a. m., 20 U. at 4:15 p. m., and 20 U. at 11:45 p. m. The combined sleep for the day and night was five hours.

Fourth day: Insulin, 30 U., was given at 7 a. m., 25 U. at 11:30 a. m., 25 U. at 4:30 p. m., and 25 U. at 10 p. m. The patient spent a comfortable day, sleeping two and one-half hours, and a fairly comfortable night with four and one-half hours sleep.

Fifth day: Insulin, 25 U., was given at 10:30 a. m. and 25 U. at 9 p. m. He had three and one-half hours sleep during the day and four hours during the night.

Sixth day: Insulin, 30 U., was given at 7 a. m. and 30 U. at 3:30 p. m. He was alert all day and slept five and one-half hours during the night.

Seventh day: Insulin, 30 U., was given at 7 a. m., 30 U. at 10 a. m., and 30 U. at 8:45 p. m. The patient had a good day and slept six hours during the night.

Eighth day: He received only 30 U. of insulin at 10 a. m., and spent a good day and night.

From this day until the patient's discharge from the hospital at the end of three weeks, no insulin was given. However, the patient insisted on a nightly sedative and usually received either sodium amytal, 6 gr., or barbital, 10 gr., with good effect. He constantly showed a tendency to exaggerate the need for sedative, complaining of vague aches and pains. Though obviously able to be about, he repeatedly procrastinated in the matter of joining diversion programs, saying "there is yet plenty of time before returning to work." With the discontinuance of insulin, there was a tendency

for nausea to recur. This was several times relieved by the intravenous injection of 33 1/3 per cent glucose. Between the tenth and fourteenth days there was evidence of myasthenia which seemingly responded favorably to intramuscular injections of 1 cc. of metrazol. After each of these injections, he relaxed, sometimes slept an hour, then seemed in better muscular tone. It is not likely that this effect was psychic, since he had already developed a conscious aversion for hypodermic injections.

The description given of the course after the eighth day applies to both patients in almost every detail; the older man had far fewer complaints. Beginning with the third day, the younger man repeatedly praised the treatment as the easiest he had ever had and considered it superior to any of the "cures" he had experienced. The older man said he had never heard that withdrawal could be so easily accomplished; he had always been afraid to try treatment. Except for brief periods of excessive diaphoresis after insulin injections, and a feeling of weakness during the second week, they did not mind the abrupt withdrawal. They repeatedly asserted there was no conscious craving for the opiate after the second day. At the end of their hospital stay, the younger man had gained eight pounds and the older man three pounds.

Course of treatment for the older brother: This was similar to that given the younger man, except that the dosage of insulin was generally 5 to 10 units higher. There was one instance of hypoglycemic stupor during the second day. On the whole, his ordeal was much easier than the younger man's; he often reassured and eased his less comfortable brother; his nightly sleep was also more satisfactory.

Reliable followups of treated addicts are rare; and the incidence of lasting cures is small. It is of interest, to note, therefore, that the writer has well-authenticated information that patients 5 and 6 have gone without opiates for a year.

Case 7.

This patient was a married woman, a Porto Rican by birth, aged 38, addicted to morphine since 1932. She had led a healthy, normal life up to that time, when in searching for reasons for her sterility, it was found she had fibroids of the uterus, and a partial hysterectomy was performed. Postoperatively, she complained of epigastric pains which required morphine to ease them. Because of increasing frequency of these pains a cholecystotomy was done. Subsequently, the addiction was recognized; the pains continued to recur. She had several admissions to hospitals for the treatment of her addiction, but each effort was given up because the epigastric pains became unbearable. Always, with the experiencing of with-

drawal symptoms, she had profuse salivation which added considerably to her discomfort during waking hours. One week before admission, she had herself admitted to a city hospital with the hope of transfer to a State institution. She was released from the city hospital when the transfer was not authorized. She was admitted to this hospital three days later, August 4, 1940. Her opiate requirement was 3½ grains per day.

Course in the hospital: She was immediately placed under hypoglycemic treatments because she said she had been without morphine since leaving the city hospital. Her distress was obvious, and she continuously kept gathering saliva into handkerchiefs. The hypoglycemic reactions regularly relieved her symptoms. During the first few days, two to three insulin injections a day were necessary for her comfort. During the second week, treatment once a day was sufficient. Her dosage of insulin varied from 30 to 50 units. The salivation continued active for two weeks after the epigastric pains had completely ceased. During the first three weeks, she was generally a little depressed; but she kept herself occupied with recreation and occupational activities after the third day in the hospital.

By her own choice she stayed in the hospital two weeks longer than stipulated on admission; and she was discharged as free of symptoms on September 15. At no time did she require a sedative either in the day time or at night to assist with sleep. She gained in weight from 100 pounds to 110 pounds. She was seen five months later. She was happy, had gained some additional weight, and was free of craving.

Comment

Whether the group represents, so-called "mild" or "severe" addicts is of little importance. The degree of addiction is dependent upon the personality of the addict, the motivations and the emotional necessity for the addiction, rather than upon either the duration or the daily amount of the drug used. From this viewpoint patients 2, 3, 5 and 6 were severe addicts. Patient 1 was a difficult managing problem, but he would be so in any type of hospitalization. All the patients were relatively comfortable by the third day; even where a severe hypoglycemic reaction occurred at a later date, the patients were not distressed by such experience. All patients disclaimed a conscious craving for their opiate after the second day. Only patients 1, 2 and 5 had one day each when no solid food was taken. Beyond the third day all had satisfactory appetites, probably due to the hunger of hypoglycemia.

Barbiturates in moderate doses and substitute opiates in insufficient amounts were demonstrated as ineffective, even tending to aggravate symptoms at the beginning of the withdrawal period. All cases demonstrated the effectiveness of insulin for the control of distress. In cases 1, 2 and 3, insulin always helped when ordinary sedatives failed to give relief or made the patient feel worse. Divided or small doses of insulin were found less effective than single large doses. There is, as has been observed in hypoglycemic shock therapy for the psychoses, an intermediate state of hypoglycemia which is distressing to the patient. This was overcome to a large measure by a later injection of insulin intravenously. This seemed to force the hypoglycemia past the stage of discomfort to the patient. As the technique of the treatment became more reliable, patients fared better without other sedation than the insulin during the first week of withdrawal. Patient 4 was so completely free of symptoms that a colleague of the writer, seeing him about, doubted whether this was an addict at all; he had never seen one so comfortable from the very first day in the hospital.

Technique

1. The patient should be hospitalized during the active period of treatment. The attending nurse should be familiar with insulin reactions.

2. Insulin injections are begun when definite withdrawal symptoms are apparent. If the period of hospitalization permits, the recommendations of Howard[16] and Piker[12] should be useful, a quick reduction to two or three grains a day before establishing complete withdrawal.

3. The prescribed dose of insulin should produce relaxation, some sleep, diaphoresis, and in most instances a feeling of hunger within two or three hours. When the given dose is insufficient to produce the desired effect, it may be augmented by an additional dose intravenously. The response to the intravenous injection is more rapid, offering an accumulative action, as apparently occurred in cases 4, 5 and 6. The initial dose can only be surmised, and estimated more accurately with experience; the subsequent dosages must be governed by the carbohydrate intake, previous reaction, and changes in the relative sensitivity[17] to insulin.

4. In the event of deep stupor or coma, the hypoglycemic reaction should be interrupted, preferably, by an intravenous injection of glucose. Only 8 to 10 gm. are needed for this purpose; the patient will drink the additional glucose. A state of stupor or light coma is sometimes desirable as an opportune time for a gastric lavage, especially if there is a pronounced tendency to nausea, usually due to excessive bile in the stomach. It is important that the attendant in immediate contact with the patient should not bring an element of anxiety to the bedside, for this is highly contagious for the patient. Stuporous patients, particularly if exhibiting myoclonic activity, may suddenly regain consciousness and react with panic to the attendant's anxious expression.

5. Insulin injections are continued until all tangible signs of withdrawal have disappeared, the injections being reduced in frequency after the acute stage. Whenever possible, the termination of the hypoglycemia is made to coincide with the regular meal time. The early recognition by the patients of healthy appetites, albeit due to the insulin, has a salutary effect on their moods and cooperativeness.

6. Adjunctive therapy should include warm baths, if willingly accepted, preferably in an ordinary tub, as there is usually an impatience or aversion for special therapies. Cardiac support may be necessary at times but should not be prolonged; oral medication is not well tolerated. Residual myasthenia, vague aches and pains, or insomnia, may persist for weeks and even months,[1, 2] and require attention. Massage is useful. Metrazol, in tonic doses, seems to have a good effect for a time, particularly for the myasthenia. Amphetamine sulfate (benzedrine), 10 mg., after breakfast helps to relieve secondary depression. Insulin in moderate doses is also useful, provided there is no strong aversion to its use. Patients are often worried about prolonged use of hypodermic medication. However, these secondary or late manifestations should not go unnoticed, as such an attitude may undermine the much-needed confidence in the physician. Sedatives should be used sparingly, if at all; and none should be given during the period of active insulin treatments. Besides the fact that sedatives mask the insulin effect, these patients are highly susceptible to new addictions.

Discussion

The rationale of administering insulin for withdrawal is supported by observations of its effect on other clinical conditions. Fisher and Snell[18] reported in 1924 the successful treatment of surgical shock with insulin and glucose. Cowie et al.,[19] the same year, from experience with diabetic children, observed that "the most noticeable reaction from the use of insulin was the clearing of the depression." It is the experience with hypoglycemic shock therapy, even when there has been only somnolence or mild stupor, that when the hypoglycemia is terminated the patients are mildly euphoric for variable lengths of time. Hypoglycemia excites hunger; addicts are more comfortable when distracted, as by a visit and conversation with the physician; and certainly an interest in food is distracting, after the phase of revulsion toward food has passed. Hypoglycemia has a powerful, quieting effect on excited and restless patients, more efficient than sedatives in general use. Bennett and Miller[20] report excellent results with insulin as a sedative. The writer's clinical observations bear this out.

During the acute phase of withdrawal, much of the distress results from a disorganized or hyperlabile function of the autonomic nervous system. The diminished secretion of the lacrimal and salivary glands, the dry skin, the secondary effects of these, the gastrointestinal symptoms—all may be expected to yield in some degree to the usual effects of insulin: diaphoresis, salivation, and relaxation of nervous irritability. It is well established that insulin in shock doses influences the autonomic nervous system; it is readily observable in the course of hypoglycemic shock for the psychoses. Pfister[21] and Wespi[22] have independently observed profound action on the autonomic nervous system by induced hypoglycemia.

Also present during withdrawal, is a disturbance in sugar metabolism,[2, 4] a hyperglycemia and an elevated hyperglycemic index. Unlike Sakel, who based his work on purely theoretical considerations, Anton and Jacobi,[23] recognized the presence of hyperglycemia, when they began to treat addicts with insulin and glucose. Freed et al.,[24] in a study of blood sugar curves in the course of hypoglycemic shock therapy, find a shift in tolerance from the hyper- to the hypoglycemic type of curve. Kolb and Himmelsbach[2] find that the blood sugar of addicts returns to the prewithdrawal level

after the acute phase subsides, without special treatment; but this should not detract from the usefulness of the insulin therapy. Hirsh,[25] assuming the presence of hypoglycemia, has claimed favorable results with glucose alone. Others[1, 2, 13, 14] also claim it to be effective. This is not improbable, especially after the acute phase. Glucose administered intravenously will afford temporary relief, especially from the distress of nausea. This effect of glucose, given intravenously, has been demonstrated repeatedly during hypoglycemic shock therapy and in treating the present group of addicts; it seems to hasten the emptying of the stomach. The vomitus of addicts generally contains large amounts of bile. If this is assisted to pass forward into the intestine, much comfort should result to the patient.

In closing, the practical value of the treatment should be considered. In cases of economic pressure, it permits a shorter period of hospitalization. It saves the patient much distress and brings about an early physical restitution, which makes him accessible to psychotherapy much sooner. The cooperative patient leaves the hospital grateful and in a healthier state of mind. For the physician, the use of insulin offers the opportunity to treat this class of patients without personal exhaustion through the excessive attention otherwise required. Under the treatment described, with the help of competent nursing, the addict is no greater burden than the average mildly restless psychiatric patient.

Summary

An effective method of treating opiate withdrawal with insulin has been described. The results obtained with a preliminary group of seven patients seem to recommend the method for further trial.

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PROGNOSIS IN SCHIZOPHRENIA; A STUDY OF 271 CASES

BY DANIEL SILVERMAN, M. D.

I. Introduction

During the past four years there has been renewed interest in the prognosis of schizophrenia arising, apparently, out of the need for establishing "base lines" to interpret intelligently results from the new "shock" therapies. Although many studies[1-12] based on statistics from public or charity institutions have appeared, comparatively few[13-16] stem from private hospitals. This communication will present a statistical analysis of results from the Menninger Sanitarium, a private psychiatric institution, of all schizophrenic cases admitted to the hospital from the year of its inception, 1925, until the end of 1938. Later papers will deal with detailed analyses of prognostic criteria and compare results with other surveys.

The criteria for the diagnosis of schizophrenia followed in this paper are those set forth by the Committee for Mental Hygiene.[17] The records of all patients with the diagnosis of schizophrenia or paranoid condition were examined; but the following types of cases were excluded from the study: outpatients (that is, unhospitalized), those with insufficient data to reestablish the diagnosis either because of incomplete records or observation of less than one week, cases of uncertain diagnosis (such as paranoid states, schizophrenic episodes, paraphrenia), and incorrect diagnosis as proved by subsequent course. The cases used, 271 out of 1,410 total admissions, were then followed chiefly by correspondence with patients, friends, relatives, referring physicians and psychiatric institutions; a few former patients were seen from time to time by members of the clinic staff. Since the method relied upon was not personal interview, it seemed impractical to distinguish cases commonly classified as complete remission, as social recovery, and as greatly improved. Therefore, in the followup studies, the foregoing will be referred to as "recoveries" although actually differentiations can be made at the time of the patients' discharges from the hospital.

A short description of the institution will furnish a background for evaluating the results to be described. In the first place, it must be realized that all the patients were private; and discharges, seldom with medical advice, were dictated largely by family attitudes and financial resources. The Menninger Clinic opened its inpatient hospital (12 beds) in 1925 on a 20-acre farm on the outskirts of Topeka, Kan. At that time, most of the patients were drawn from the surrounding communities, predominantly middle class and lower middle class farming people. Often, those patients were hospitalized for diagnosis and transferred to a state institution for treatment. The type of treatment in the sanitarium was highly individualized psychiatric care with occupational therapy, recreational therapy and physiotherapy. Gradually the institution underwent certain changes; the bed capacity increased five-fold; personnel and physical equipment were greatly expanded. Between 1929 and 1933, the orientation of the treatment changed markedly; the staff was trained and guided along psychoanalytical lines. Cases were studied from a dynamic point of view, and a psychoanalytically oriented *milieu* was perfected. During this time, patients were drawn from the whole country, with only 10 per cent from Kansas. They represented more the middle and upper middle economic strata. In 1936, the shock therapies added new therapeutic levers to the treatment of schizophrenia at the Menninger Sanitarium. Therefore, in analyzing results, it seems convenient to divide the patients into three groups—those admitted from 1925-1930 inclusive (Period I, six years); from 1931-1935 (Period II, five years); and from 1936-1938 (Period III, three years).

II. Results at the Time of Discharge

Of the total of 271 patients, 132 were men, and 139 were women; 93 were in Period I, 88 in Period II, and 90 in Period III. Table 1 gives the results obtained at the end of treatment at the clinic. The total of remitted, socially recovered, greatly improved, and slightly improved patients adds up to 68 per cent—an impressive majority benefited by treatment. The slightly improved category, however, does not designate a significant therapeutic achievement; these patients are still psychotic and warrant hospitalization. The greatly improved group includes those who have made a partial recovery,

TABLE 1

Results of 271 Cases at the Time of Discharge from Hospital

	All cases		Men		Women	
	No.	Percentage	No.	Percentage	No.	Percentage
Remission	26	9.6	13	9.8	13	9.4
Social recovery	67	24.7	23	17.4	44	31.6
Greatly improved	14	5.2— 39.5	6	4.0— 31.8	8	5.8— 46.8
Slightly improved	79	29.1	46	34.8	33	23.7
Unimproved	85	31.4— 60.5	44	33.4— 68.2	41	24.4— 53.2
	271		132		139	

1925-1930

	All cases		Men		Women	
	No.	Percentage	No.	Percentage	No.	Percentage
Remission	10	10.8	6	13.6	4	8.2
Social recovery	15	16.0	5	12.4	10	20.4
Greatly improved	5	5.4— 32.2	2	4.5— 29.5	3	6.1— 34.7
Slightly improved	24	25.8	10	22.8	14	28.6
Unimproved	39	42.0— 67.8	21	47.7— 70.5	18	36.7— 65.3
	93		44		49	

1931-1935

	All cases		Men		Women	
	No.	Percentage	No.	Percentage	No.	Percentage
Remission	8	9.1	3	6.8	5	11.3
Social recovery	25	28.4	9	20.5	16	36.4
Greatly improved	6	6.7— 44.2	3	6.8— 34.1	3	6.8— 54.5
Slightly improved	26	29.6	17	38.6	9	20.5
Unimproved	23	26.2— 55.8	12	27.3— 65.9	11	25.0— 45.5
	88		44		44	

1936-1938

	All cases		Men		Women	
	No.	Percentage	No.	Percentage	No.	Percentage
Remission	8	8.9	4	9.1	4	8.7
Social recovery	27	30.0	9	20.4	18	39.1
Greatly improved	3	3.3— 42.2	1	2.3— 34.8	2	4.4— 52.2
Slightly improved	29	32.2	19	43.2	10	21.7
Unimproved	23	25.6— 57.8	11	25.0— 68.2	12	26.1— 47.8
	90		44		46	

but who are still considered by the staff as unstable personalities; they usually show some mild psychotic symptomatology. The socially recovered comprise those patients who are in good contact with reality, but who have defective insight or slight evidences of a still active schizophrenic process. The term remission is self-explanatory, although, to be accurate, this category should be reserved for those adjusted in society for a reasonable period of time without symptoms. Of all the foregoing groups then, the slightly improved, 29 per cent of the total, represents the least degree of improvement; this leaves 39½ per cent of all patients significantly recovered.

It is interesting to note that "recoveries" were obtained in 32.2 per cent in Period I in contrast to 44.2 per cent and 42.2 per cent, respectively for Periods II and III. There is no doubt that the therapeutic response was better in the past decade. On the other hand, full remissions seemed to be constant—about 10 per cent in each group. It must be remembered that only 18 per cent of the patients were discharged with medical advice; hence, under these conditions, the full remission rate could hardly reach a maximum. At first glance it appears that the shock therapies used chiefly in Period III did not change the outlook at all; that this is more apparent than real will be pointed out later.

III. Results at End of Observation

The results, after a period of followup ranging from one to 15 years, (average 6.2 years) are summarized in Table 2. The average observation time for the first period (I) was 10.1 years, for the second period (II), 5.7 years; and for the third period (III), 2.6 years. All but nine cases, or 3.2 per cent, were followed more than one year. Of the 96.7 per cent observed more than one year, 8.9 per cent were followed for an average of 3.3 years, but not up to the date of the completion of this investigation, June, 1940. It will be noted that at the end of observation 47.6 per cent were in the recovered group as compared to 39.5 per cent at the time of dis-

TABLE 2

Results at the End of Observation

(Including status at death)

	All cases		Men	Women
	No.	Percentage	No.	No.
A. (Recovered at the Menninger clinic and remained well)	56	20.7	25	31
B. (Recovered elsewhere and remained well)	42	15.2	21	21
C. (Recovered at the Menninger clinic, but had subsequent relapse with recovery) (2—twice)	22	8.1	10	12
D. (Recovered elsewhere, but had subsequent relapse with recovery) recovery) (2—twice)	9	3.3	6	3
		47.6%	46.6%	48.2%

	All cases No.	All cases Percentage	Men No.	Women No.
E. (Never recovered)	84	31.1	46	38
F. (Relapsed after recovery at the Menninger clinic) ..... (4—twice; 1—three times; 1—four times)	28	10.4	8	20
G. (Relapsed after recovery elsewhere) (4—twice)	21	7.7	14	7
		49.1%	51.6%	46.7%
H. (Followed under 1 year)	9	3.3	2	7
		3.3%	1.8%	5.1%

1925-1930

	All cases No.	All cases Percentage	Men No.	Men Percentage	Women No.	Women Percentage
A.	15		7		8	
B.	10		4		6	
C.	7		3		4	
D.	3	37.6	3	38.6	0	36.2
E.	41		23		18	
F.	8		3		5	
G.	5	58.1	1	61.4	4	55.2
H.	4	4.3	0	0.0	4	8.6

1931-1935

	All cases No.	All cases Percentage	Men No.	Men Percentage	Women No.	Women Percentage
A.	18		8		10	
B.	12		7		5	
C.	11		4		7	
D.	2	48.9	0	43.2	2	54.6
E.	26		14		12	
F.	10		3		7	
G.	9	51.1	8	56.8	1	45.4
H.	0	0.0	0	0.0	0	0.0

1936-1938

	All cases No.	All cases Percentage	Men No.	Men Percentage	Women No.	Women Percentage
A.	23		10		13	
B.	20		10		10	
C.	4		3		1	
D.	4	56.6	3	59.1	1	54.4
E.	17		9		8	
F.	10		2		8	
G.	7	37.8	5	36.4	2	39.1
H.	5	5.6	2	4.5	3	6.5

charge. In the recovered group only 20.7 per cent remained perfectly well from the time of discharge from Menninger's; another 15.5 per cent recovered subsequent to their discharge and remained well; the remaining 11.4 per cent suffered one to three relapses, but when last heard from were well. On the negative side 49.1 per cent were not improved compared to 60.5 per cent at discharge. Of these, 31 per cent never recovered; the remaining 18.1 per cent had some free intervals. Ninety-three (70 per cent) of the unimproved patients were still in mental hospitals, 26 were at home, and 14 had died.

The percentage of recoveries at the end of observation for each period was better than at the time of discharge; 38, 49, and 57 respectively, compared to 32, 44, and 42. This would seem to indicate far superior prognosis in the more recently treated cases. However, as will be pointed out in the next section, the length of followup is an important determinant.

An analysis of the 16 deaths and of the incidental organic conditions found either during hospitalization or during the followup period is given in Table 3.

TABLE 3

Deaths

7 women, 9 men—16 or 5.9 per cent

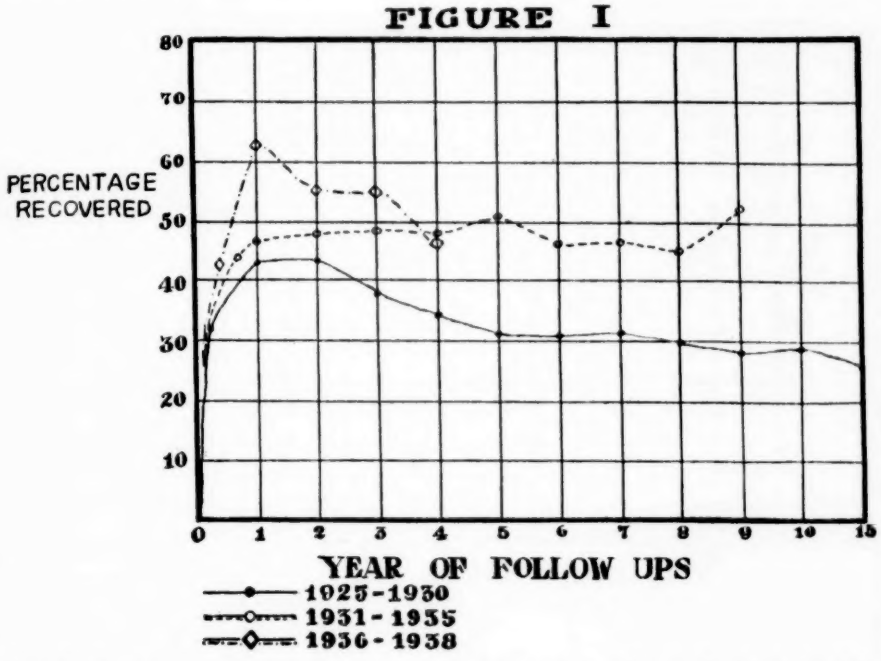
1.	Suicide	—4 (2 F, 2 M)
2.	Pneumonia	—3 (3 M)
3.	Starvation	—2 (2 F)
4.	Tuberculosis	—2 (1 F, 1 M)
5.	Sarcoma	—1 (F)
6.	Peritonitis	—1 (F)
7.	Acute myocarditis	—1 (M)
8.	Coronary occlusion	—1 (M)
9.	Biliary obstruction	—1 (M)

Conditions Associated or Later Developed

1.	Tuberculosis (active)	—3 (2 F, 1 M)
2.	Pyelonephritis	—3 (2 F, 1 M)
3.	Rheumatic heart disease	—3 (1 F, 2 M)
4.	Huntington's chorea	—1 (M)
5.	Pernicious anemia	—1 (M)
6.	Variola	—2 (2 F)
7.	Pregnancy	—2 (2 F)
8.	Postpartum	—3 (3 F)
9.	Diabetes mellitus	—1 (M)

IV. Lengths of Followup and Results

To obtain a more dynamic view of the prognosis an attempt has been made to represent the status of the cases for every consecutive year after discharge from the Menninger Sanitarium. In Fig-



ure I, the percentage recovered is plotted against the year after discharge, for each of the three periods. This, of course, represents only the preponderance of recoveries over relapses or vice versa. To demonstrate the actual changes that occur, the vertical bars in Figure II show above the line the percentage shifting from unimproved to recovered between one year and the next; and below the line the percentage shifting from recovered to unimproved. Even this does not tell the whole story since the percentages are affected by the completion or loss of followups for some particular years.

This graph well illustrates the peak of recovery reached one to two years after hospitalization—10 per cent more recovered in Period I, 5 per cent in Period II, and 20 per cent in Period III.

FIGURE II A

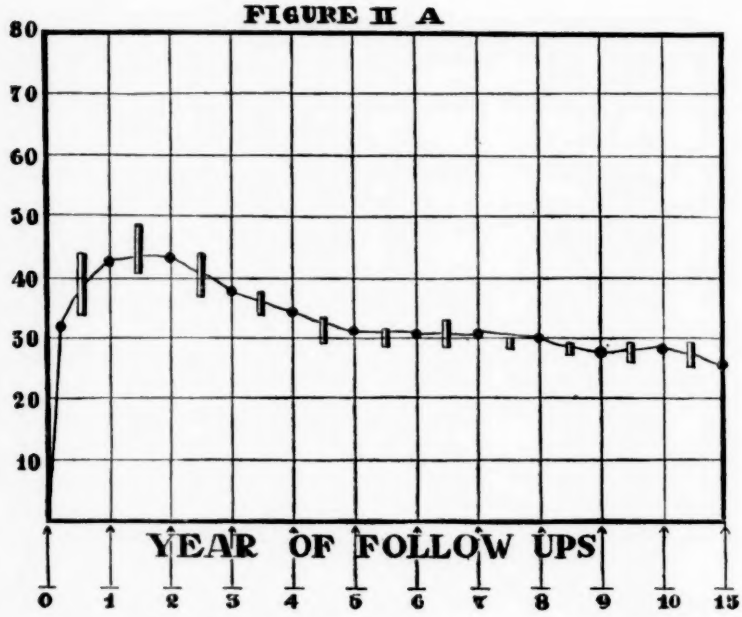


FIGURE II B

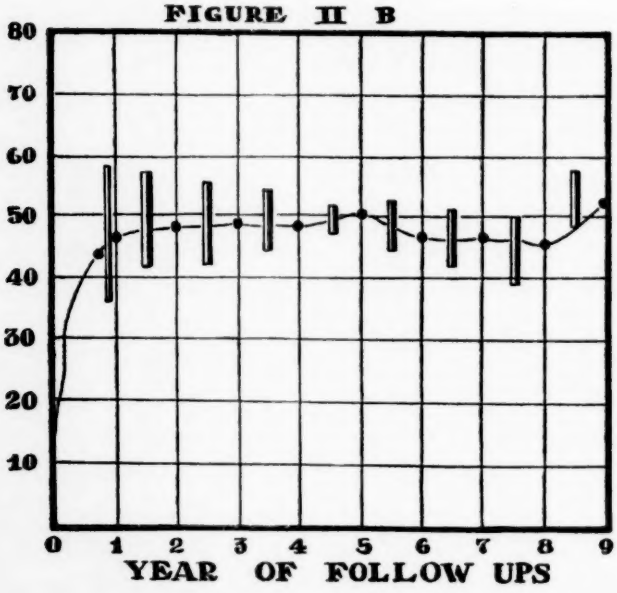
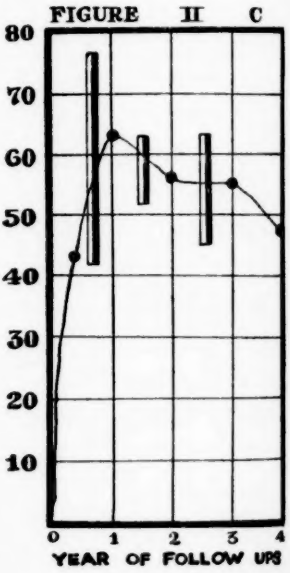


FIGURE II C



The percentage recovered in Period I progressively dropped after the second year (43 per cent) until at the end of 15 years hardly 25 per cent of the patients remained well. The percentage recovered in Period III also dropped progressively after the maximum (63 per cent) at the end of the first year. On the other hand, the percentage recovered in Period II remained almost constant after the maximum (50 per cent) was reached. It is important to note the great instability of the patients in Periods II and III. The vertical lines (Figure II, B and C) are long, indicating many relapses and recoveries. If one excludes the last year of Period III, in which there were only 15 cases, and the last two years of Period II with less than 18 cases (these are too few for reliable percentage figures), it can be seen that the prognosis is best for patients in Period III.

V. Prognostic Factors from Statistical Analysis of Data

a. *Influence of Length of Hospitalization*

The average length of hospitalization for all patients was 4.6 months; if nine patients who stayed longer than one and one-half years were excluded, the average would be 3.4 months. Hospitalization was shortest, 2.5 months, in Period I, longest, 6.9 months, in Period II, and was 4.7 months in Period III. Recovered patients were hospitalized longer than those unimproved or slightly improved, 5.2 months as compared to 4.3; this relationship holds for each period. A truer picture of hospitalization time may be arrived at by classifying patients according to varying lengths of stay; 96 patients were treated under one month, 75 between one and three months, 53 between four and six months, and 47 longer than six months. The percentage of recoveries in each of those groups was 24, 45, 49, and 53 respectively, a telling indication of the value of longer hospitalization. However, this is not specific, since a breakdown in each period presents too few cases for such a correlation. Viewed from the end of followup, the percentage of recoveries in each of the groups (under one month, one to three months, four to six months, and over six months) was changed considerably —42, 53, 40 and 51 respectively. This shows no consistent relationship between the length of hospitalization and ultimate outcome.

b. *Type Distribution*

The distribution of cases according to type (see Table 4) was similar to that described in the literature except for a greater percentage of paranoid (34 per cent) and mixed (17 per cent) types. Probably too much importance should not be placed on classification; often patients exhibited combined pictures as well as fluctuating symptomatology. Unless the type was definite, cases were

TABLE 4

Types of Cases and Results

	Simple	Catatonic	Hebephrenic	Paranoid	Mixed
All cases	19 (7%)	67 (25%)	46 (17%)	93 (34%)	46 (17%)
Percentage "recovered" *initially*	37	49	20	44	39
Percentage "recovered" *finally*	47	57	30	43	63
Men	13	19	24	51	25
Percentage "recovered" *initially*	31	45	13	31	36
Percentage "recovered" *finally*	46	47	29	45	68
Women	6	48	22	42	21
Percentage "recovered" *initially*	50	50	27	55	43
Percentage "recovered" *finally*	50	58	36	41	48

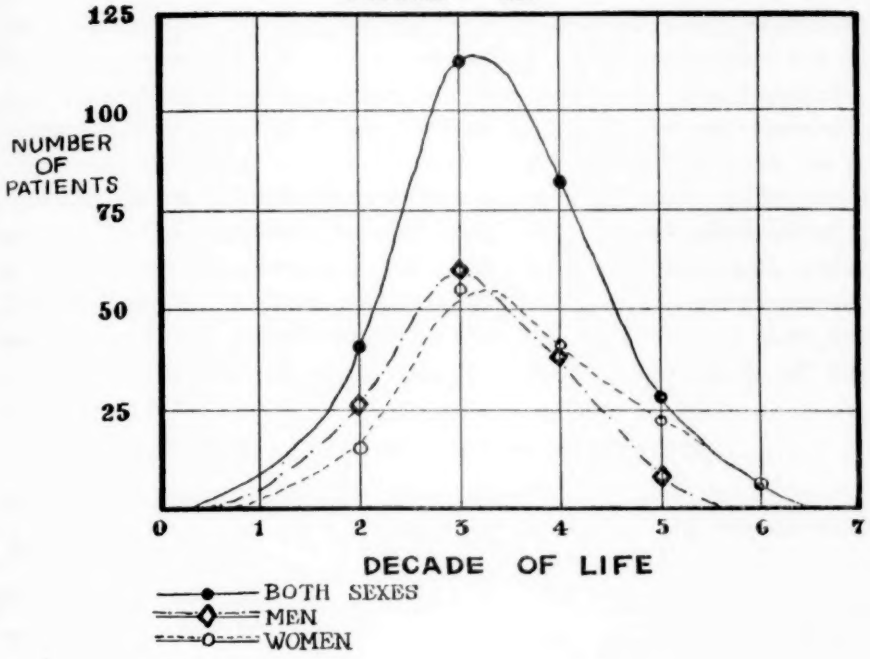
placed in the mixed category; this, perhaps, accounted for the greater number of mixed cases. It is well known that schizophrenics over a period of years often change their dominant picture; however, the original diagnosis made at the sanitarium was accepted as the classification type.

The immediate outcome was most favorable with catatonics (49.3 per cent) and least for the hebephrenics (19.6 per cent). However, at the end of observation, the mixed types showed the most favorable response with 63 per cent recovered; the catatonics were next with 57 per cent recoveries. A surprising finding was the good result obtained with paranoid schizophrenics—44 per cent of recoveries at the end of hospitalization and 43 per cent at the end of observation.

c. *Age Distribution*

Patients were classified according to decades of life at the time of their hospitalization in the Menninger Sanitarium. Figure III gives the age frequency curve and illustrates the usual peak of cases in the third decade of life. It was found that the youngest patients showed the best immediate response—51 per cent recovered in contrast to 38 per cent for those over 20. The ultimate outcome, on the other hand, was poorest for the youngest patients—43 per cent compared to 50 per cent.

FIGURE III



d. *Influence of Duration of Illness*

The duration of illness prior to hospitalization and its direct correlation to the acuteness of onset are perhaps the most important factors determining prognosis. It is, however, difficult to designate the onset of schizophrenic processes. Many patients will show progressive personality changes not necessarily schizophrenic; for example, mild hypochondriasis, queer and impulsive behavior, and affective swings before the onset of definite prepsychotic symptoms. In this paper, the prepsychotic symptoms were assumed to be the onset of the disease. Those whose symptoms were of less than six months were considered acute; those between six and 12 months, subacute; and those longer than a year were designated chronic.

The acute cases comprised 41 per cent of the patients (Table 5), the subacute, 14 per cent; and the chronic, 45 per cent. The results were strikingly better with the acute cases—57 per cent recovered at the end of hospitalization, as compared to 41 per cent of the sub-

acute cases and only 24 per cent of the chronic. At the end of observation, the results were similar—68 per cent, 57 per cent, and 26 per cent respectively, were recoveries. When the patients were separated into the three periods, some interesting findings were disclosed; the percentage of acute cases progressively decreased—51 per cent in Period I, 42 per cent in Period II, and 30 per cent in Period III. Viewed from the end of observation, the results were progressively better with each type of case in the more recent years, but most important was the improvement seen with the chronic cases—11 per cent recovered in Period I, 24 in Period II, and 38 in Period III. This relationship between duration of illness and the therapeutic result is so important that no set of statistics

TABLE 5

Influence of the Duration of the Illness on the Results

	Acute			Subacute			Chronic		
	Both	Men	Women	Both	Men	Women	Both	Men	Women
All cases (number and percentage)	111 (41%)	57	54	37 (14%)	10	27	123 (45%)	65	58
Percentage recovered initially ..	57	56	57	41	20	48	24	14	36
Percentage recovered finally	68	65	70	57	50	59	26	25	28

1925-1930

	Acute			Subacute			Chronic		
	Both	Men	Women	Both	Men	Women	Both	Men	Women
All cases (number and percentage)	47 (51%)	23	24	10 (10%)	3	7	36 (39%)	18	18
Percentage recovered initially ..	49	52	46	30	33	29	14	6	22
Percentage recovered finally ...	60	52	66	20	0	29	11	11	11

1931-1935

	Acute			Subacute			Chronic		
	Both	Men	Women	Both	Men	Women	Both	Men	Women
All cases (number and percentage)	37 (42%)	21	16	14 (16%)	2	12	36 (39%)	21	16
Percentage recovered initially ..	68	62	25	43	0	50	22	10	37
Percentage recovered finally ...	68	67	69	57	58	58	24	19	31

1936-1938

	Acute			Subacute			Chronic		
	Both	Men	Women	Both	Men	Women	Both	Men	Women
All cases (number and percentage)	27 (30%)	13	14	13 (14%)	5	8	50 (56%)	26	24
Percentage recovered initially ..	56	54	57	46	20	63	34	23	46
Percentage recovered finally ...	81	85	79	85	80	88	38	38	37

	Both	Men	Women
Previous psychotic breakdowns	37	10	27
Percentage recovered initially	43	30	43
Percentage recovered finally	51	50	52

Breaks less than five years previously	10	Breaks more than five years previously	27
Percentage recovered initially	40	Percentage recovered initially	44
Percentage recovered finally	20	Percentage recovered finally	63

should be interpreted without this analysis. For example, it would appear that the results were not quite so good in Period III as in Period II; however, the breakdown according to the acuteness of onset shows that there were many more chronic cases in Period III and this preponderance, despite the fact that actual results were better, lowered the recovery average to a point below that in Period II.

The existence of previous psychotic breaks did not seem to influence the prognosis remarkably. There were 37 such cases; and the recovery percentage was comparable to all cases—43 per cent at the time of discharge, and 51 per cent at the end of observation. However, if the previous psychosis occurred less than five years before the present attack (10 cases) the outlook seemed to be poor ultimately—only 20 per cent recovered.

e. *Differences Between Men and Women*

At the time of discharge from the sanitarium women had a much better immediate response than did men (Table 1), especially in Periods II and III where the differences amounted to as much as 20 per cent. There are three factors which may partially account for the differences. Women were hospitalized longer than men—5.4 months as compared to 3.9—and, accordingly, immediate results should be better. However, closer examination reveals that, even with equal hospitalization periods, results with women were better. Catatonics, the type with the best immediate results, occurred twice as frequently among women (Table 4); but, this table reveals that the response was better among women in every type of the disease. The third possible explanation might lie in the preponderance of women's subacute cases with correspondingly fewer chronic cases (Table 5); however, here again women's results were uniformly better. Therefore, it is impossible from the foregoing to point to

the exact reasons for better immediate results with women. At the end of observation the differences in recovery disappeared (Table 2); this leads to the conclusion that the ultimate prognosis for men and women is the same.

VI. Results of Intensive Psychotherapy

Thirty-one patients had intensive psychotherapy, 15 women and 16 men. Psychoanalysis was attempted with nine patients; however, only six were of sufficient duration to be called analyses. It is encouraging to note that five of the six were recovered at the end of the treatment and four at the end of observation (one with a very unstable adjustment). That analysis of schizophrenics might introduce a dangerous element is suggested by the occurrence of two suicides among the psychoanalytically-treated patients. The analytic cases were too few, of course, to arrive at any conclusions. Formal psychotherapy was used with 22 patients (seven following metrazol treatments). Of these, 64 per cent recovered initially, but only 50 per cent at the end of observation; the latter percentage is the same for patients treated by *milieu* therapy. The distribution of these patients according to duration of illness was similar to all patients (48 per cent acute as compared to 41 per cent for all); the only difference in result is seen in the better response of chronic cases—six of the 12 recovered.

VII. Results of Shock Therapies

Metrazol or insulin (or both) was administered to 74 out of the 271 patients either at the Menninger Sanitarium or subsequently at other institutions (Table 6). Fifty-three per cent recovered at the

TABLE 6

Shock Therapy

	Both	Men	Women
All cases treated with metrazol or insulin (9 doubly treated cases)	74	36	38
Percentage recovered initially	53	50	55
Percentage recovered finally	47	50	45
Metrazol			
	Both	**Men**	**Women**
All cases	51	26	25
Percentage recovered initially	51	50	52
Percentage recovered finally	49	54	44
Insulin			
	Both	**Men**	**Women**
All cases	32	17	15
Percentage recovered initially	47	41	53
Percentage recovered finally	34	29	40

end of treatment, and 47 per cent at the end of observation; this seemingly indicates no better results than those treated without shock therapy. However, the value of shock therapy is well demonstrated if the figures are broken down according to duration of illness (Table 7). With the acute cases, 90 per cent recovered at

TABLE 7

Influence of the Duration of Illness Upon Shock Therapy Results

	Acute			Subacute			Chronic		
	Both	Men	Women	Both	Men	Women	Both	Men	Women
Cases treated by all types of shock therapy	19	8	11	9	2	7	46	26	20
Percentage recovered initially	90	88	91	78	100	71	33	35	30
Percentage recovered finally	95	100	91	67	100	57	24	31	15

	Acute	Subacute	Chronic
Cases treated with metrazol	15 (29%)	6 (12%)	30 (59%)
Percentage recovered initially	87	83	27
Percentage recovered finally	93	67	23

	Acute	Subacute	Chronic
Cases treated with insulin	4 (13%)	3 (9%)	25 (78%)
Percentage recovered initially	100	67	32
Percentage recovered finally	100	67	20

the end of observation. All of the four acute cases treated by insulin recovered. Subacute cases responded better (78 per cent recovered compared to 41 per cent without shock therapy) but chronic cases did not. These results would seem to indicate that pharmacologic treatment is distinctly indicated for schizophrenics whose illness is less than a year's duration and offers for them an excellent prognosis.

VIII. Summary and Conclusions

The records of 271 schizophrenic patients admitted to the Menninger Sanitarium between the years 1925 and 1938 were studied; and the course of most of these patients was followed up to June, 1940, chiefly through correspondence. The following conclusions seem warranted from a statistical analysis of the recorded data:

1. Recoveries, including those with mild symptomatology were obtained in 40 per cent of all patients; in 32 per cent of 1925-1930 patients, 44 per cent of 1931-1935 patients, and 42 per cent of 1936-1938 patients. Results were better in 1936-1938 than indicated in the preceding figures, due to the greater number of chronic cases treated.

2. Full remissions occurred at a constant rate, about 10 per cent.

3. At the end of observation recoveries were 48 per cent—the best results were found in the 1936-1938 patients (57 per cent). The peak of recoveries was one to two years after the initial hospitalization; and thereafter a slow drop in the percentage of recovered cases occurred. Patients in the 1936-1938 period showed the highest peak (63 per cent) and had the best prognosis. Recoveries before 1931 were relatively stable compared to those after 1931.

4. The length of hospitalization bore some relationship to the immediate outcome, but little to the ultimate prognosis.

5. Catatonics showed the best immediate prognosis, and were second to the mixed type in ultimate prognosis.

6. Schizophrenia occurred most frequently in the third decade of life; those in the second decade had the best immediate, but the poorest long-time outcome.

7. Acuteness of onset was found to be one of the most important prognostic factors in the disease; illness under six months' duration offered the best prognosis. Results with chronic cases in 1936-1938 were over three times better than in 1925-1930.

8. The immediate therapeutic response of women was better than men; but the prognostic outlook was the same.

9. There were too few cases to arrive at any statistical conclusions concerning the value of intensive psychotherapy.

10. Metrazol and insulin treatment resulted in 18 recoveries out of 19 acute cases and six recoveries out of nine subacute cases. No significant statistical differences could be discerned between shock and other therapies for the chronic cases.

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MODIFIED BULGARIAN BELLADONNA TREATMENT OF PARKINSONISM

Clinical Study of the Effect of Bulgarian Belladonna Root Extract Modified by the Addition of Scopolamine, Benzedrine and Phenobarbital in the Treatment of Psychosis with Post-Encephalitic Parkinsonism

BY LEON REZNIKOFF, M. D.

During the past few years, the so-called Bulgarian treatment of Parkinsonism has attracted a great deal of attention. Several enthusiastic reports appeared in the foreign literature[1] and were followed by favorable comment in the United States. The interesting historical aspects of the origin of this therapy (at first used by Bulgarian plant collector, Raeff) need not be repeated here, since practically everyone who keeps abreast of medical literature is familiar with it. Suffice to say, that while originated in nonmedical hands and on purely empirical grounds, as many other medical discoveries have been, it has been quickly adopted by the medical profession throughout the world.

Thus, Josephine B. Neal,[2, 3] of the Matheson Commission for Encephalitis Research, came to the following conclusions: "After an intensive study during the past ten years of many cases of chronic encephalitis treated by various symptomatic measures, I have no hesitation in stating that the Bulgarian treatment (decoction or tablets) is by far the most effective method of therapy."

Various preparations of Bulgarian belladonna root have been employed. In this country at first, a white wine decoction was used; but since this preparation is not stable, an extract of Bulgarian belladonna root was made in tablet form. Some investigators have been using a solution of the alkaloids of belladonna root, which was also found unstable and for which a synthetic compound, known as "rabellon"* (consisting of 90 per cent hyosciamine hydrobromide, 7.4 per cent atropine sulfate and 2.4 per cent scopolamine hydrobromide) was later substituted. The experience reported in this paper was with tablets containing four decimilli-

*Manufactured by Sharp & Dohme, Philadelphia, Pa.

grams of the total alkaloids extracted by white wine from the selected roots of Bulgarian belladonna, known commercially as "bellabulgara."*

Vollmer,[4, 5] using at first extract of Bulgarian belladonna root and later several synthetic compounds, including "rabellon," published his experience in two comprehensive reports. He aptly remarked: "This treatment does not, except in rare cases, bring about a complete cure, or even a complete symptomatic cure. But when neither the physician nor patient expects too much, the therapeutic results will be satisfactory to both in a fairly high percentage of cases. In any event, the Bulgarian treatment seems to be the most effective therapy available at present."

Forster[6] used Bulgarian belladonna root as an adjunct to treatment with scopolamine, benzedrine and atropine and with various combinations of these drugs. He considered Bulgarian belladonna root as a worthwhile adjunct to the treatment of Parkinsonism.

Fabing[7] in a preliminary report stated that Bulgarian belladonna root is a better therapeutic agent in the treatment of most cases of postencephalitic Parkinsonism than the drugs of the belladonna series previously used.

Gayle[8, 9] using "rabellon," said: "Our results were startling and most gratifying. We wish to report very conservatively that with the possible exception of one patient all the postencephalitic (30) cases showed varying degrees of improvement from slight to marked. It is not only true that these patients felt better, but that there was a definite and in some cases a decided objective improvement. The cases with psychosis accompanying their Parkinsonism were all improved."

In deciding to submit a group of patients suffering from psychosis with postencephalitic Parkinsonism to the treatment with Bulgarian belladonna root the staff of the Hudson County (New Jersey) Hospital for Mental Disease was especially interested (1) to learn if this drug has any beneficial effect on the structure of the psychosis itself and its psychotic manifestations; (2) to determine what advantages could be derived from using this drug instead of atropine, scopolamine, stramonium and benzedrine, which

*Manufactured by Lederle Laboratories, New York, N. Y.

were employed in the past; and (3) to determine more definitely if Bulgarian belladonna would be more effective in eliminating, or at least diminishing, the attacks of oculogyric crisis in these patients.

Procedure and Results

A group of 14 patients was selected for this study; there were six men and eight women, varying in age from 28 to 62. The diagnosis of psychosis with postencephalitic Parkinsonism was established beyond any doubt in every patient; and a definite history of epidemic encephalitis years ago was obtained. Patients suffering from Parkinsonism on an arteriosclerotic or any other basis than epidemic encephalitis were excluded from this investigation.

All the patients lived in the hospital under the same conditions and were all subject to the same routine. Prior to the administration of "bellabulgara"—with the exception of one or two patients—they all had been treated for many years with the usual drugs employed in the treatment of Parkinsonism; they received large doses of atropine sulfate, according to the method suggested by Stemplinger[10] and others, scopolamine hydrobromide, stramonium leaves and tincture, benzedrine sulfate and, lately, a combination of benzedrine sulfate with scopolamine. Since they were all committed patients, there was an excellent opportunity to observe for long periods of time the effects of these drugs both on the physical conditions and mental states of the patients. Observations made on several of these patients in a previous study of the effect of benzedrine sulfate in postencephalitic Parkinsonism were presented before the meeting of the American Psychopathological Association and later published in the Archives of Neurology and Psychiatry,[11] so that this group constituted men and women with whom the examiner was well acquainted because of continuous institutional care, extensive treatment and observation, and because they had been used in previous experimental studies. While under treatment, these patients were observed daily by the writer and reexamined weekly.

The investigation lasted six months. The patients received "bellabulgara" in various doses, from one tablet three times a day to five tablets three times a day. In order to evaluate as accurately as possible the effect of "bellabulgara" on their conditions,

the treatment was interrupted twice during the six-month period. The first time, after the third week of treatment, "bellabulgara" was abruptly stopped; and the patients were put on placebos resembling "bellabulgara" tablets in size, shape and color for 10 days. The second time at the end of the ninth week, administration of "bellabulgara" was again stopped; and this time the patients were placed on scopolamine hydrobromide, 1/100 of a grain, three times a day for one month. Then administration of "bellabulgara" was resumed. Some of the patients received phenobarbital from one-half to one grain, or scopolamine, 1/100 of a grain, at night; and others, benzedrine sulfate, 10 to 20 milligrams, in the morning in addition to "bellabulgara." This procedure has been found extremely useful. It has been observed that while "bellabulgara" is effective in diminishing the rigidity and tremor, some patients who are extremely restless and apprehensive react better to the treatment when 1/100 of a grain of scopolamine is added once a day, preferably in the evening, to the usual dose of "bellabulgara;" the sedative effect of scopolamine apparently is helpful in cases of this kind. For patients who have a tendency to be sleepy, drowsy, and generally hypokynetic, the addition of a stimulating drug, such as benzedrine sulfate, was found of value. Also, an addition of one-half to one grain of phenobarbital at night to the usual dose of "bellabulgara" for patients who are sleepless, restless and apprehensive brought about gratifying results. Therefore, a careful study of each individual case is of paramount importance in the selection of proper therapy.

Some patients who had previously been depressed and emotionally unstable became more cheerful and contented with the administration of "bellabulgara." However, in no case where psychosis was deep-seated and of long duration did there occur any change in the structure of the psychosis or its psychotic manifestations.

The attacks of oculogyric crisis diminished considerably in frequency, severity and duration, but none of the patients who suffered from these attacks became entirely free from them. One patient (Case 9), who previously had three attacks a week, is now having only one attack a week while receiving "bellabulgara," and at times passes a week without having any attacks. Another patient (Case 7) on previous medication (scopolamine, benzedrine

and stramonium) used to have two to three attacks of oculogyric crisis a week; at present, he suffers only one attack a week on the average. When the same patient was placed on placebos, resembling "bellabulgara," he had four severe attacks of oculogyric crisis in one week. A third patient (Case 14) had been receiving for a long time at the hospital, scopolamine and benzedrine and had one to two attacks of oculogyric crisis a week; he left the hospital on parole and while at home discontinued taking all medication; his attacks then became extremely severe and frequent, occurring five to six times a week, and lasting several hours; he finally was returned to the hospital in a confused state which lasted for several days. When administration of "bellabulgara" was started, his confusion cleared up, and he is having only one attack of oculogyric crisis in five days now.

None of the patients suffered any severe ill effects, perhaps because no arteriosclerotic patients were included in this group; there were some complaints of minor nature, such as occasional nausea, dryness of the throat, and hazy vision, which were found rather useful in modifying the dosage of the drug. At any rate, these complaints were not any more frequent than when the same patients were treated with scopolamine, stramonium and atropine; in fact, they were much less persistent than when the last alkaloid was used in large doses. Frequent urine examinations and blood counts were made throughout the treatment and revealed no significant changes.

When the patients were treated with "bellabulgara," attempts were made to use psychological influences, encouragement, recreational and occupational therapy and physical exercises to the same extent and with the same effort, as previously when they were treated with other drugs, and also during the period when placebos were used. It must be realized that a patient's mood and general condition are frequently more actively affected by these factors than by any drug therapy.

Such incidental occurrences as visits from one member of the family, or failure of a visit from another, the receiving of disagreeable news, the attitude of relatives and nurses are potent factors that constantly influence a patient's feelings and moods and must

be considered when attempts are made to evaluate the result obtained with any therapy.

The case histories illustrate the condition of each patient prior to the use of "bellabulgara" and results obtained at the end of six months with "bellabulgara," modified in some cases by the addition of scopolamine, benzedrine or phenobarbital.

Report of Cases

Case 1. G. J., a 54-year-old man, has been suffering from postencephalitic Parkinsonism for the past seven years. During the past four years he had been treated at this hospital with atropine, scopolamine, phenobarbital and benzedrine. Physically, he presented a distressing picture with constant drooling, monotonous, frequently unintelligible speech; rigidity of extremities; Parkinsonian mask and pill-rolling tremor of both hands. He was so disabled that he spent most of the last few years in a wheel chair. He suffered from insomnia at night and hypersomnia in the daytime, expressed many somatic complaints and morbid ideas, and had periods of excitement and depression. The dose of "bellabulgara" was increased gradually from one tablet, three times a day, until the patient was receiving three tablets, three times a day, together with scopolamine, 1/100 of a grain, at night because of his insomnia. This patient's symptomatic improvement was very gratifying; he now sleeps better, is less depressed and spends less time in a wheel chair. He is able to walk again without assistance, but although his rigidity is diminished, his tremor remains unchanged.

Case 2. C. C., a 31-year-old male, developed postencephalitic Parkinsonism about four years ago. He has been under treatment at this hospital for the past three years, receiving stramonium leaves, atropine, scopolamine and benzedrine. Neurologically, he showed marked propulsion gait, Parkinsonian mask, rigidity of extremities, tremor of head, arms and left leg. He was so incapacitated that he spent most of the last two years in a steamer chair or wheel chair. He displayed marked emotional instability, was fearful, restless and had been having transient periods of excitement and agitation. Two tablets of "bellabulgara" were given three times a day and scopolamine, 1/100 gr., at night. He is now more hopeful and optimistic. Physically, he is able to be up and spends much less time in a wheel chair. He is able to walk without assistance although propulsion gait is still marked.

Case 3. A. T., a 44-year-old female, developed postencephalitic Parkinsonism 10 years ago, but until the present study was started had had no medication of any kind. Neurologically, she presented a typical picture of

Parkinsonism: mask-like facial expression, salivation, rigidity of all extremities, tremor of both hands of pill-rolling character, Parkinsonian attitude with propulsion gait. Mentally, she was dull, apathetic, depressed and drowsy. She was emotionally unstable; occasionally bursting into uncontrolled laughter followed by attacks of crying. Her speech was so impaired that she could not be understood, and because of physical disability it was necessary for the attendants to feed and dress her. The dosage of "bellabulgara" was gradually raised to four tablets, three times a day; and benzedrine, 20 mg., was administered daily in the morning. The general improvement in this case was more marked than in other patients since this woman never received any medication for Parkinsonism until the present investigation. She is now more alert, her speech can be understood; and she does not require as much assistance at meal time as she formerly did.

Case 4. A. C., a 36-year-old married woman, has been suffering from postencephalitic Parkinsonism for 14 years. For the past three years, she has been receiving at this hospital stramonium leaves, atropine, benzedrine and scopolamine. Neurologically, she presented a typical picture of Parkinsonism: mask-like facial expression, monotonous speech, rigidity of left upper and lower extremities, pill-rolling tremor of left hand, salivation, propulsion gait and ophthalmoparesis. She had persistent ideas of jealousy, and paranoid and litigious delusions directed against her husband, family and the hospital personnel. The dose of "bellabulgara" was gradually increased until the patient was receiving four tablets three times a day. Because she complained of insomnia at night, phenobarbital, 1 gr., was prescribed daily at 8 p. m. (one hour before going to bed). At the completion of treatment, this patient's delusional content remained the same; however, she seems more alert now, does less complaining and is more cheerful; she sleeps better. There is some improvement in rigidity, speech is less monotonous and salivation is checked.

Case 5. T. S., a married woman, aged 43 years, had postencephalitic Parkinsonism for seven years prior to admission to this hospital; however, scopolamine at irregular, short intervals was the only medication she received during that time. Neurological examination revealed a Parkinsonian mask, marked tremor of head and lips, monotonous speech, contracture of the left arm at the elbow and moderate contractures of the fingers of the left hand. She was considerably handicapped by her disabilities. She also had a compulsion to close her eyes every five or 10 minutes and to keep them closed for several seconds. The patient displayed emotional instability, had a tendency to whimper or cry continually and had many somatic complaints. T. S. was started on treatment with "bellabulgara," one tablet three times a day, and this medication was gradually increased until she was

receiving four tablets of "bellabulgara" three times a day. Treatment was modified in this case by the administration at night of phenobarbital, 1 gr. When the period of observation was concluded, this patient showed only a slight symptomatic improvement. She is emotionally more stable and sleeps better. The compulsion to close her eyes occurs only on rare occasions.

Case 6. A. F., a 28-year-old woman, with a history of postencephalitic Parkinsonism for about eight years, has been under treatment at this hospital for the past three years and during that time has received scopolamine, atropine and benzedrine. Neurological examination disclosed diplopia, monotonous speech, irregular unequal pupils, propulsion gait, mask-like facial expression, rigidity of face and extremities and a pill-rolling tremor of the left hand. Her behavior constantly caused difficulties on the ward; she was irritable, emotionally unstable, annoyed by the most trivial things, had attacks of anger and episodes of excitement. She was placed on one tablet of "bellabulgara," three times a day, and shortly afterward on two tablets three times a day. At the completion of the study, her mental condition remained unchanged; she was still emotionally unstable, demanding and aggressive. There was a slight improvement in rigidity; the tremor was somewhat diminished and salivation was checked.

Case 7. A. P., a 27-year-old man, has had postencephalitic Parkinsonism for the past eight years. During the last three, he has been treated at this hospital with stramonium leaves, atropine and benzedrine. Neurologically, he presented a Parkinsonian mask with the mouth continually open, partial loss of automatic associated movements, rigidity of extremities, tremor of both hands, monotonous speech and ophthalmoparesis and had almost daily attacks of oculogyric crisis. He was drowsy, apathetic, irritable, at times argumentative, emotionally unstable and given to outbursts of excitement. "Bellabulgara," three tablets three times a day, was given and scopolamine, 1/100 gr., was added at night. Upon completion of the observation period, he was less irritable, slept better and had been having only three attacks of oculogyric crisis in two weeks.

Case 8. A. R., a man of 34, has been suffering from postencephalitic Parkinsonism for the past two years during which time he received at this hospital scopolamine, benzedrine and stramonium. In addition to his Parkinsonism, this patient has arrested intellectual development with an I. Q. of 78. His commitment was brought about following a sexual assault on a six-and-one-half-year-old girl. He was dull, disinterested and superficial. Neurologically, he presented a left external strabismus, a pill-rolling tremor of the right hand, a Parkinsonian facies and rigidity of the left upper extremity. His medication throughout the whole period of investiga-

tion consisted of two tablets of "bellabulgara," three times a day. Following treatment, he became more contented and has been doing useful work on the hospital farm and grounds. His rigidity diminished and slobbering is checked, but tremor remains about the same.

Case 9. J. O'B., a 30-year-old woman, has had postencephalitic Parkinsonism for the past four years. Benzedrine and scopolamine have been administered continually at this hospital for the past eight months. She had attacks of oculogyric crisis every other day, Parkinsonian mask, marked rigidity on left, tremor more marked on the left, salivation and slight left facial paresis. She was emotionally unstable, depressed, of borderline mentality, and is said to have been sexually promiscuous before admission to this hospital. The patient was started on "bellabulgara" tablets, one tablet three times a day, and the dose of this medication was gradually increased until she was receiving four tablets of "bellabulgara" three times a day, and as a stimulant, benzedrine, 10 mg., daily in the morning. She seems in a better and more cheerful mood, and helps the nurses and attendants on the hospital ward. The attacks of oculogyric crisis occur now once a week instead of three to four times a week as they previously had.

Case 10. E. K., a 29-year-old woman, developed postencephalitic Parkinsonism about nine years ago. For the past three years, while hospitalized here, she had been treated with atropine, tincture of stramonium, benzedrine and scopolamine. The neurological picture showed tremor of both hands, pill-rolling movement in left hand, rigidity of muscles of face and of both lower and upper extremities, propulsion gait, sluggish pupillary reaction and ophthalmoparesis. She was emotionally unstable, subject to outbursts of excitement, constantly quarrelled with other patients and attendants on the ward, was generally mischievous and had a history of sexual promiscuity before hospitalization. She received "bellabulgara," two tablets three times a day. At the end of the observation period she was somewhat easier to manage and seemed more contented, although her mental picture remained essentially the same. Her rigidity diminished and her tremor became less marked.

Case 11. A. S., a woman aged 62, apparently developed postencephalitic Parkinsonism about nine years ago. She had been treated with atropine, scopolamine and benzedrine for the past three years at this hospital. Neurological examination revealed tremors of both hands, mask-like facial expression, occasional diplopia, limited ocular movements, defective and conjugate deviation. She displayed confusion, was sleepy, apathetic and disinterested. Two tablets of "bellabulgara" were given three times a day; and on this medication, the patient appeared less drowsy and apathetic. Her rigidity and tremor were somewhat diminished.

Case 12. M. W., a 49-year-old male, developed postencephalitic Parkinsonism three and a half years ago. Prior to treatment with "bellabulgara" he had received no other medication. Neurologically, this patient presented monotonous speech, a mask-like facial expression and tremor of the pill-rolling type. Mentally, he was apathetic, confused, muttered to himself and was uninterested. Two tablets of "bellabulgara," three times a day, were given to him during the period of investigation. Although his mental condition remained unchanged, following completion of treatment, this patient became more cooperative and shows some alertness now. His rigidity diminished.

Case 13. A. O., a 46-year-old woman, has been suffering from postencephalitic Parkinsonism for the past nine years; and during the past two and one-half years she has been under treatment at this hospital receiving scopolamine, stramonium leaves and benzedrine. Neurological findings were: irregular pupils, tremor of both hands and arms, monotonous speech and mask-like expression. She had frequent episodes of depression alternating with excitement, was confused and expressed many somatic complaints, that is, she thought her rectum was almost closed. She also had many delusions of religious and sexual nature and hallucinations of hearing and vision. She was emotionally unstable. She was placed on two tablets of "bellabulgara," three times a day. At the end of the treatment, this patient was more cooperative and cheerful. She seemed more alert and expressed fewer somatic complaints, in fact, she spontaneously asserted that she felt much better and had no pains or aches. Her rigidity is diminished.

Case 14. P. W., a single man aged 33, developed postencephalitic Parkinsonism 12 years ago. For the past four years, he has been under observation, off and on, at this hospital receiving atropine and benzedrine. However, when he went home on visits he neglected to take his medication, or increased the dosage at his own discretion. His neurological status was: monotonous speech, a mask-line facies, some ophthalmoparesis, strabismus, history of diplopia in the past, salivation and tremor on the left, with a tendency to pill-rolling movement and attacks of oculogyric crisis occurring five or six times a week when off medication. His mental symptoms consisted of marked emotional instability, belief that the "world was against him," tendency to be assaultive, and the idea that a former girl friend wanted to give him poison. He required large doses of "bellabulgara" and the medication had to be raised until he was receiving five tablets, three times a day. He also received phenobarbital, 1 gr., at night which was later

changed to scopolamine, 1/100 gr., at night. At the end of the treatment period, he was emotionally more stable, slept better and stopped being assaultive. His speech became less monotonous. The most striking improvement was the reduction of his attacks of oculogyric crisis from five or six a week to one attack in five days.

Summary and Conclusions

1. Symptomatic treatment of postencephalitic Parkinsonism with Bulgarian belladonna root extract is superior to all other medications tried in the past.

3. Treatment must be individualized; better results are obceive it; when administration of the drug is discontinued symptoms return.

3. Treatment must be individualized; better results are obtained when "bellabulgara" is combined with other drugs: For example, patients who are hyperkynetic and suffer from insomnia should receive scopolamine or phenobarbital, especially toward the evening, in addition to Bulgarian belladonna; while those who are hypokynetic and suffer from hypersomnia do better when benzedrine sulfate is added in the morning to "bellabulgara;" psychological influences, occupational and recreational therapy are valuable adjuncts.

4. While attacks of oculogyric crisis became less frequent and severe, in no patient were they entirely eliminated.

5. Although the essential structure of psychosis remained unchanged, most of the patients showed better emotional stability and became more contented and optimistic when under this treatment, a matter which is of great value in the management of any chronic disorder of long duration.

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THE USE OF "RABELLON" IN THE TREATMENT OF CHRONIC ENCEPHALITIS

BY C. W. HUTCHINGS, M. D.

The treatment of the sequelae of epidemic encephalitis received new impetus within the past decade from the discovery by Ivan Raeff, a Bulgarian, that a preparation made from the roots, rather than the leaves, of the belladonna plant was more effective in treating these disorders than the preparations formerly used (atropine, hyoscine).

Unfortunately this information did not appear in American publications until within the past two or three years. Extracts made from the roots, moreover, were of varying assay and were unstable. From experimentation, it developed that a combination of hyoscyamine, atropine and scopolamine gave the best clinical results. Sharp & Dohme have made a synthetic preparation called "rabellon" which contains these alkaloids in the following proportions, said to be the most effective: hyoscyamine, 0.45 mg.; atropine, 0.037 mg.; and scopolamine, 0.012 mg. This preparation comes in flat white tablets so grooved that they can be divided into four sections.

Recent literature contains many reports of cases treated with this drug with improvements far beyond those obtained by the use of other remedies. It was determined to try this preparation upon a group of chronic patients at the Marcy State Hospital to compare the results with the old methods previously used—and in the hope of making the patients more comfortable. Although the number reported here is small, they are all cases of long duration (10 years or more) and were psychotic.

Procedure

A careful survey of all these patients was made to determine their condition on the treatment they had been receiving; then all medication was entirely discontinued for one week to eliminate all other drugs before starting "rabellon." During this period there was a rapid return of neurological symptoms and subjective complaints to the extent that two or three of the patients were entirely confined to bed, although they had been up and about previously

for a number of years. Drooling, tremors, spasticity, gait difficulties, torsion spasms, narcolepsy, insomnia and other symptoms returned rapidly. During this interval, the patients were placed on a special diet to eliminate stimulating foods, such as coffee, spiced meats and rich mixtures. Alcohol was not a problem here, but tobacco was difficult to eliminate entirely. Meat was reduced to every other day; and veal, other white meats and fish were used when possible. Medication, when started, was given before meals, three times daily, and before bedtime when necessary.

The usual procedure of starting with a quarter tablet three times a day, increasing gradually by one-quarter of a tablet a day, was followed until what appeared to be the optimum dose in each case was reached. This dose was then maintained, except in a few instances where it was later increased, usually at the patient's own request.

The patients remained on the same wards and as nearly as possible in the same environment that they had lived in previously. They received no other medication and, as far as possible, received no more special attention than previously. They were told, however, the reason for the change in medication and at first were so enthusiastic that they made conscious efforts to appear better than they were. However, in the months that have elapsed since that time, this initial enthusiasm has entirely subsided.

The toxic symptoms watched for were: excessive dryness of the mouth, blurring of vision, dizziness, nausea, headache, constipation, dysuria, hyperpyrexia, and subnormal temperature—in about the order named. Two of the patients felt best when dryness of the mouth appeared. They received chewing gum to stimulate the salivary secretion. Blurring of vision was usually the first toxic symptom of any importance; and when this occurred, the dose was reduced slightly for a while. At no time, did any symptoms appear serious enough to interrupt the treatment.

It is recognized that the results are symptomatic, that treatment does not alter the pathological process and that improvement lasts only as long as the administration of the drug is continued. These facts were well demonstrated by the rapid increase in symptoms during the rest period before "rabellon" was started.

During the initial period, careful observations, both objective and subjective, were recorded by the physicians and nurses; and this procedure was of material aid in establishing the size of the ultimate dose.

Treatment was started on June 17, 1940; and at the present writing, it has been in progress nine months.

Case Reports

Case 1. (L. D.). This patient is a man of 37 who, 20 years ago, had an illness diagnosed as "sleeping sickness." Behavior disorders were first noticed in 1924. Later, he exhibited labored breathing, periods of irresistible sleeping and changes in personality. He was admitted to hospital November 6, 1924, and has grown slowly worse since. At present he is very spastic and helpless, with tremor of hands (more marked on right side), drooling, dysarthria, frequent oculogyric crises, and typical Parkinsonian posture. Prior to June, 1940, he was receiving nine doses of hyoscine hydrobromide, 1/100 gr., daily and often extra doses to relieve the oculogyric crises. Since "rabellon" was started, he has shown only slight objective improvement. He is still helpless, but he can occasionally answer a question or speak spontaneously a few words. There are fewer oculogyric crises. It is observed that he has less salivation and can chew, talk and sleep better. He reports he feels more cheerful, is seldom sleepy during the day and is less spastic. He protests against returning to hyoscine. He now is receiving three and one-half tablets three times a day.

Case 2. (M. G.). This is a man, 36 years old, who had influenza in 1920; but the first symptoms of encephalitis did not appear until 1928, when he saw double, his head shook, and he had periods of excessive sleeping. In 1930, his hands began to shake, and he reports he had periods when he could not see or speak. He staggered in walking, became depressed and made suicidal attempts. His first hospital residence was from 1932 to 1936. The second hospital residence is from 1938 to the present time. Prior to June, 1940, there was driveling, especially at night, and frequent oculogyric crises. He repeatedly made attempts at suicide by thrusting his head through window panes. He showed moderate dysarthria, tremor of the right hand and head, and he dragged the right foot in walking. Much time was spent in bed at his own request because of a general feeling of stiffness and aching of muscles. He was receiving 1/100 gr. of hyoscine hydrobromide four times a day and extra doses for the oculogyric crises when they occurred. Since June, he is less spastic, talks and eats better and has fewer oculogyric crises. There have been no suicidal attempts, and

he has not gone to bed during the daytime since treatment by "rabellon" was instituted. He works about the ward willingly and reports he moves about more easily, feels clearer in his mind, feels able to control himself better and slobbers less. No improvement is reported, by the patient or observers, in tremor, gait or facial expression. He now receives two pills t. i. d.

Case 3. (H. M.). This patient is a man of 36 whose symptoms are of 20 years duration. At the age of 16, he had a "bilious attack," and soon afterward, it was observed that he had epidemic encephalitis. At first he slept most of the time, but later he became quarrelsome. Next, tremor was noted, and this has gradually grown worse. He was admitted in January, 1933, at which time he showed hyperextension of the spine and neck when walking. Later, this changed to a torsion and flexion of the spine; and propulsive gait has been present for several years. Salivation has been a prominent symptom, and there were frequent oculogyric crises. Tremor was marked, especially on the right side. There was stiffness of all muscles, mask-like expression, dysarthria and irritability; and he was often incontinent. He was confined to a wheel chair and spoon-fed. Since June, 1940, there has been little objective change except that he slobbers less, has fewer oculogyric crises and is less irritable. Subjectively, he reports that he feels much better, that he now can move more easily, that he feels clearer mentally and can retain what he reads better than before. He is not so drowsy; he can feed himself and sleeps well. He is still confined to a wheel chair because of propulsive gait when he attempts to walk. He objected to a proposed change back to hyoscine. He was receiving hyoscine, 1/100 gr. t. i. d., and now receives "rabellon," five tablets t. i. d.

Case 4. (R. H.). This man is now 33 years old. He had sleeping sickness at 14; he slept day and night for about six weeks and had double vision. Soon afterward, his hands began to tremble and he became irritable. At 17, his head began to twist to the left side and could be held straight only with difficulty. At 21, he developed a spasmatic lordosis and was unable to keep his head straight. He could not sleep until long after midnight. When he was admitted to the State hospital in March, 1929, there were reported tremor of hands and forearms, involuntary movements of legs, tongue and eyelids and a mask-like expression. During the years, he grew slowly worse; and he was confined to bed or a wheel chair. He could walk only with the assistance of two employees. He received hyoscine, 1/100 gr. t. i. d., and luminal, 1½ gr. once a day, for many weeks without much improvement. Later tincture of stramonium, 45 minims t. i. d., was given, and still later atropine, .5 per cent, 20 minutes t. i. d., all without much improvement. In June, 1940, "rabellon" was started; but no change was observed until the dose reached three tablets three times a day. When

the dose was increased to five tablets a day, he was able to walk unassisted, could keep his head straight most of the time and could talk better. Later the dose was lowered to four tablets t. i. d., and he remained the same. He said: "Feel much better than with atropine or hyoscine, my back doesn't tighten up any more, my mind feels clearer and I can feed myself now and talk better." He drools only at night, seldom has oculogyric crises now and he is greatly pleased at being able to walk again. He still has tremors, but, he thinks, less than previously. With atropine, he complained that his mouth was so dry he could not swallow, while with hyoscine and stramonium he driveled all the time.

Case 5. (F. M.). This is a man, now 26, who has been ill for 11 years. About 1930, he began to have oculogyric crises, movements and speech became slower and he began to slobber. Nobody could recall that he had had any illness resembling influenza. By February, 1936, he had grown slowly worse, was depressed and attempted suicide. Soon he became irritable and assaulted members of the family. Therefore, he was admitted to the hospital. His mask-like facial expression, tremor of the arms and dysarthria were noted at that time. During his hospital residence, he impulsively assaulted others, broke windows and was emotionally unstable. Marked polydipsia was observed; he drank water every few minutes, often to the extent that he staggered in walking. With the passing years, his neurological condition has grown worse. He developed a steppage gait involving only the left leg and a crouching posture in walking, with the head thrown far back. He was receiving hyoscine, 1/100 gr. t. i. d., and luminal; now he receives "rabellon" two and three-quarters tablets, t. i. d., and he walks a little better. There have been fewer oculogyric crises and salivation is less. When questioned, he says that he feels better; but his appearance and behavior have not shown much improvement.

Case 6. (L. C.). This man, now 30, has been ill 21 years. In 1920, he had "subclinical encephalitis" (he was 10 years old), with lethargy and somnolence; but he was not confined to bed. After this, he could not keep awake in school and exhibited conduct disorders, so he was sent to a State school. There he refused to conform to any regulations and frequently attempted to escape. He had many altercations with both patients and employees and is reported to have manifested homicidal tendencies. He was transferred to the State hospital in June, 1935. At that time, there was a mask-like expression and dysarthria with scanning speech. When interviewed, he displayed a silly, mirthless grin. A left facial paralysis, with right spastic hemiplegia, was noted, also gross tremors of hands, exaggerated reflexes, drooling and unequal pupils. During the ensuing years he often assaulted others, made sexual advances to female employees and homo-

sexual advances to other patients. He constantly teased other patients and stole their belongings. There was a stooping posture in walking and he dragged the right toe. His mouth hung open and he driveled constantly. Since June, 1940, he walks better, drags his foot less and salivation is not so marked. At present, he takes some interest in work on the ward and annoys other patients less. He reports that he talks more easily, shakes less and feels better generally than when he was receiving hyoscine. At present he is receiving "rabellon," two and one-half tablets t. i. d.

Case 7. (D. G.). This 30-year-old man had influenza in 1920. He was ill two days and was dull and listless for one week. The first symptom noticed was that he lifted his right foot higher than necessary and higher than his left foot in walking. He was unable to sleep until early morning hours and then was irritable during the daytime. Tremor developed about this time. He exhibited cruelty to animals, to small children and to his parents. After a year, he slept better; some time later, he slept more than was normal. In 1927, he molested girls by raising their skirts. He was a patient in another State hospital for about a month in 1927. Upon his return home he was restless and irritable and assaulted his mother with threats to kill. He was readmitted to the hospital as a result of this behavior. On admission, he was restless, evasive, mischievous, boastful and noisy. Homosexual advances were reported. He was transferred, in August, 1933, to this hospital, where he worked for a while. He was then paroled in June, 1934, but was returned the following August after attempting to assault a girl. He annoyed women patients when opportunity permitted, and attempted suicide several times. The following symptoms were evident at this time: tremor, mask-like expression, loss of associated movements in walking, festinating gait, spasticity and some excess of salivary secretion. Since June, 1940, he reports he walks more easily, that his head is clearer, that he does not feel so stiff, speaks more easily and does not get irritable as formerly. Objectively no change was observed. He received no hyoscine. He now receives "rabellon," two and one-half tablets t. i. d.

Conclusions

It is realized that no very general conclusions can be drawn from this small group of cases, but the following facts appear to be obvious:

The doses administered are much larger than those usually reported; but it must be remembered that this group was made up of patients of long standing who had been receiving large doses of hyoscine over long periods of time.

In each case, the dose of "rabellon" was adjusted to the individual's tolerance and at such a point that it remained just short of causing toxic symptoms, at which dose, maximum benefits appeared.

The results were uniform, in that the patients all reported more improvement in subjective feelings than with any other medication heretofore used. In the majority of cases, this improvement was not so pronounced objectively. Their protest against returning to former medication is noteworthy.

"Rabellon" obviates many of the unpleasant and often distressing side effects of the drugs previously used and, in the opinion of the writer, is the most satisfactory drug so far found for the treatment of chronic encephalitis.

ACKNOWLEDGMENT

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THE SYNDROME OF CAPGRAS

BY G. M. DAVIDSON, M. D.

In 1923, Capgras and Reboul-Lachaux[1] described a phenomenon which they called an illusion of "doubles" and which consisted in an inability on the part of a woman patient to recognize individuals well known to her. She would assert that the confronted persons were doubles of the individuals in question. Since the publication of the first report on the subject, there appeared a number of other papers by French writers; and the clinical manifestations became known as the syndrome of Capgras. It is of interest that all reports until 1936 concerned women, a somewhat unusual situation. In 1936, Murray[2] reported one male case showing the syndrome. Since there have been no other similar reports, and since the writer has observed two more male cases, he believes that the latter warrant presentation.

The only references on the subject in English are the papers by Coleman[3] and Murray. Since Coleman very ably summarized the literature, extensive use will be made here of his review. The first case described by Capgras and Reboul-Lachaux concerned a woman who was subject to a chronic paranoid psychosis. In the course of the latter, and with a clear sensorium, the patient began to complain that "doubles" replaced various persons in her environment. As time passed, she asserted she had seen a thousand doubles of her daughter. The patient was otherwise subject to ideas of persecution and grandeur.

In 1924, Capgras and Carrette[4] described another case of a woman who since childhood had demonstrated a striking attachment to her father and hostility to her mother. She grew up to be a solitary, ill-tempered and intellectually retarded person and was certified to be insane at the age of 18. She was described as seclusive and asocial, with ideas of inferiority and with delusions of persecution by her parents. This was, evidently, a case of schizophrenia. She required several hospitalizations because she would improve only temporarily and, when home, would again become excited and unmanageable. Capgras and Carrette reported a recent development of ideas of incest and the illusion of doubles. The pa-

tient began to speak openly of libidinous desires toward her father. Concomitantly with this content, she began to speak of doubles whom her parents sent to visit her instead of coming themselves. Her sensorium was clear.

In 1931, Larrive and Jasienski[5] reported another case of a woman who in the course of a chronic paranoid psychosis demonstrated the phenomenon of doubles. She expressed the belief that her poorly-endowed lover had a rich, aristocratic, handsome and potent double.

In 1933, Coleman,[3] in reviewing the subject, described a case of his own. He said that while it was not an entirely satisfactory case—since it did not concern a double of a person but referred to letters written by an individual—psychologically the mechanism was still one and the same. The patient concerned was a woman of 50 who had recently had an attack of melancholia. She insisted that her family was ruined and her daughter seduced because of her wickedness. She also blamed her neighbors for causing her condition. She was depressed and agitated. Her past life was given as uneventful; she had been a nurse until her marriage at 26, and had had two children. The family life was reported as a happy one. Two years before her hospitalization, her husband had been declared bankrupt; the family was left practically penniless; and the home had to be broken up. The older daughter was employed in a hospital as a nurse in the locality where they had lived and she remained there, while the patient and her younger daughter were compelled to move far away and be dependent upon relatives. The emotional factors aroused by the circumstances and the woman's climacteric were considered to have been instrumental in causing her depression.

In the hospital, the woman remained essentially unimproved. In addition to the symptoms noted, she expressed mild feelings of depersonalization. Six months after admission, she developed the idea of doubles in the form that she refused to recognize the letters of her daughters as written by them. She insisted that they were forgeries in facsimile written by someone else. Her aunt persuaded her that the letters from the younger girl were genuine, but nothing could convince the patient with regard to the letters from the older daughter. Her sensorium was clear.

The case of Murray[2] was one of a young man, single, apparently homosexual, subject to schizophrenia. He denied the identity of his parents during their visits, saying the visitors were their doubles.

New Case Material

Case 1. Male, aged 30, French, His family history was given as negative for mental disorders for two generations. He was born in France and was the second of two children; the older was a sister. He had been ambivalent in his feelings toward his parents and sister since childhood. Otherwise, his early development was reported as uneventful. He received an average schooling, after which he learned the trade of a fabric designer, the occupation he pursued up to the time of his psychosis. Sexually, there was a history of masturbation intermittently since puberty. His sexual impulse was described as weak and sex activity was meager. He married at 20 and was divorced two years later. His marital life was maladjusted; he had ideas of infidelity. At 25, he joined the army but was discharged in a short time because of a "nervous breakdown" of which the details are unknown. Then he came to the United States and about five years later was committed to the Manhattan State Hospital. One year before admission, he had married for a second time. The wife was French-Alsatian, about the husband's own age, an aggressive and unstable person whom he had known for some six months. The marital adjustment was poor, with both partners sexually inadequate and incompatible. The patient denied any history of diseases, injuries or toxic influences. The man was described as seclusive, stubborn and suspicious, with average intelligence.

The psychosis was gradual in onset following marriage. The man began to be highly suspicious of his wife, accused her of infidelity, resented any visits made to her by any of her friends, and had ideas of reference whenever his wife spoke in Alsatian to anybody. Finally, when the patient struck his wife, attempting to throw her out of the house, he was taken to a hospital for mental observation and was subsequently committed.

In Manhattan State Hospital, he was found to be in good physical condition. The physical examination was negative. Routine laboratory tests, including the blood Wassermann, were negative. The habitus was asthenic, with a somewhat effeminate appearance. He was noted to be neat, tidy and cooperative and to converse freely on indifferent subjects but to be evasive as to personal affairs. Emotionally, the man was shallow. He had the idea that his wife was not the person he married, that she was a double, that she was not a Catholic but a Jewish woman. Also, he declared there were cer-

tain differences in temperament, and he felt even that the formations of the sexual organs of his wife and her double were different. He thought that when the one person went out of the house the other came in. He denied ideas of reference, persecution or other trends and hallucinations. The sensorium was clear. After a residence of some months, the man appeared improved, consistently denied his former ideas and began to rationalize. However, evasion remained as to his personal affairs. He was subsequently discharged as a deportable alien; and, for that reason, the case could not be followed up further. The diagnosis upon discharge was dementia præcox, paranoid type, the condition noted as much improved.

Case 2. Male, aged 73, of Irish extraction, married, in the hospital for some 18 years. According to the patient, his father died of cancer of the stomach at the age of 42. His mother died at 32 of intestinal trouble. His younger brother was alcoholic and died of pulmonary tuberculosis. This patient was born in New York City, the older of two brothers. He was much attached to his younger brother. When the older boy was nine, he was orphaned and taken to a parochial boarding school where he remained until he was 12. Then he began to work on farms and continued farm work up to the age of 20, when he became involved with the daughter of his employer, in a relationship in which the young woman was the aggressor. To escape from the situation, he enlisted in the army where he remained for some 10 years. When he returned home, he married the same girl from whom he had fled, an action forced by her. The marital adjustment was poor. There were two children, the older a mental defective who later died. Sex life was meager. Any history of diseases and injuries was denied. As to toxic influences, there was a history of alcoholism since the early twenties, with the man going on sprees for about a month at a time. Otherwise, the patient was described as seclusive and sensitive, very efficient in his work as a gas inspector, and of good intelligence.

The psychosis was sudden in onset and followed an alcoholic spree of seven weeks duration. The man became depressed; was apprehensive to the point of fearing to leave the house unaccompanied; could not sleep, as he feared being killed—a result of derogatory and threatening auditory hallucinations. He was, therefore, hospitalized.

In Manhattan State Hospital, the patient was found to be in good physical condition; his examination, including routine laboratory tests, was negative. Mentally, he was noted to be slow but cooperative, complained of feeling depressed and gave the story which has been outlined about the onset of his trouble. He had some insight, and the sensorium was clear. He was first thought to be a case of acute alcoholic hallucinosis and was paroled

about six weeks after admission. However, he failed to adjust; the very night he went home, he expressed auditory hallucinations of a persecutory and threatening character and, after about a month, had to be returned to the hospital where he has remained since. During subsequent years he was noted as being delusional, paranoid and hallucinatory. He heard all sorts of voices calling him a homosexual; and he sought for protection from his enemies and evil spirits. As time passed, the accusatory character of the voices stopped. The trend changed to a compensatory content of an extravagant nature. For instance, he believed himself to be in possession of healing powers. He has since made a good adjustment and is an excellent and valuable worker in one of the hospital industries.

Since the writer has known the patient, the man always has made a good appearance, clean shaven, very neat in dress, polite in conversation. He seems much younger than his age, shows remarkable preservation of personality; there are no defect symptoms. His memory is unusually good, with the exception of memory falsifications which are in harmony with his delusional content. As far as the problem studied here is concerned, he gave additional information. He said he had never cared for his wife. For some three years before his admission, he asserted, he had noticed she was changing considerably. He recalled that one day when she was undressed her skin appeared to him gray and like a cow's udder. He thought that the power of the devil displaced her in the form of a double. Once this double came to the hospital and asked him what he did for sexual intercourse; and when he was horrified by the question, the double advised him to commit suicide. In response to this, he said he told her to run for her life, since he would kill and get away with it, being considered insane. A week later, he said, the "true" wife visited him. When he asked her about the conversation of the last visit, she denied any knowledge of it. Further "proof" for the existence of the double was his assertion that his wife, on the day of the visit of the double, was in Connecticut. The man identified other doubles as well. One took the place of a male stenographer. Another displaced the physician in charge of the city psychopathic hospital; as proof of this, the patient had two photographs of the person in question cut out from newspapers. He declared that the true head of the hospital was a kindly man, while the double was cruel, committing people to State hospitals. Still another double replaced a hospital clergyman. The patient, therefore, stopped going to church, saying that after all he is a priest himself and is able to say mass daily himself. The diagnosis in this case is dementia præcox, paranoid type.

Comments

In summing up, it may be said definitely that the phenomenon of doubles may be entertained by persons of both sexes.

In considering the nature of the psychical disturbance which provides the setting for the phenomenon, it should be noted that the case of Coleman was diagnosed as one of involutional melancholia. The author, however, called attention to its paranoid features. It seems to the present writer, therefore, that according to American classification the case could be diagnosed as involutional psychosis, paranoid type. The remaining cases may be regarded as schizophrenias of the paranoid type, thus making the paranoid trend a trait common to all cases.

Concerning characteristics of the phenomenon of doubles, it is noteworthy that, while the patient recognizes the appearance and behavior of the confronted person, he is unable to identify him. The psyche compensates for this by postulating a double. To strengthen the matter, the patient is inclined to invent differences between the individual in question and his double. An important trait is that the double refers to a person, or persons, or objects symbolizing a person, who is of importance to the patient. It does not apply to the environment in general, and the patient does not misidentify otherwise.

With consideration of the foregoing generalized aspects of the situation, the writer would like to emphasize also the individual difficulties. Of course, information concerning the cases which have been reported is not so complete as might be desired, but the following interpretation seems justifiable. The case of Capgras and Reboul-Lachaux suggests that the phenomenon concerned chiefly the daughter of the patient. The older woman may have identified herself with the daughter, projecting upon the latter her own difficulties; thus, by denying the identity of her daughter, she got rid of her difficulties, compensating further in grandiosity.

The case of Capgras and Carrette has a very definite interpretation. In denying the identity of her father and substituting a double for him, the patient allowed herself to express toward him libidinous desires which were otherwise forbidden.

The case of Larrive and Jasienski demonstrates a simple wish-fulfillment in the way that the patient substituted for her unsatisfactory lover a potent, rich and handsome double.

The case of Coleman is extremely interesting. The present writer assumes that the letters represented for the patient her daughter who was far away. As she was not able to see the daughter, she developed the illusion of the doubles with regard to her letters instead of her person. The case history suggests that the mother had completely identified herself with her daughter who was her first born and who pursued her own occupation of nursing. In rejecting her daughter she was annulling, as it were, herself. Thus, an attempt at substitutive suicide is dealt with here. Hence, the state of agony of the patient, since the difficulty was not discharged or compensated.

In case 1 of the present paper, the patient projected his inadequacies upon his wife. He rejected her by postulating a double. Case 2 offers more material for interpretation. It may be of interest that the patient's mental illness had its onset at the time the man was passing through involution. For the significance of this epoch of life, the writer would refer to his own work[6] on the subject. The outstanding feature in case 2 was the rejection of his wife, with homicidal thoughts toward her and suicidal ideas concerning himself. He compensated by introducing a double which spared both his wife and himself. There was also rejection of other people, such as an employee of the hospital, a clergyman and the doctor who committed him. The latter rejections had roots in his homoeroticism. The painful content was later compensated for by extravagant grandiosity, with such beliefs as that of possessing supernatural powers, being a priest and being immortal.

As to the mechanism of the phenomenon, Capgras and Reboul-Lachaux called attention to the feelings of strangeness and distrust entertained by the patient as its possible background. According to Blondel, quoted by Devine,[7] a delusion of negation—such as the illusion of doubles—is rooted in a change of consciousness which is marked by a double attitude toward the present and toward past experiences. This, in turn, results in a feeling of a change within oneself and the outer world. In other words, we

have a state of depersonalization and derealization (the last term was introduced by Mapother to distinguish changes within the person himself from changes of the environment). This state may be also interpreted, using other terminology, as one resulting from changes in the sense of coenesthesia which accompanies perception. In simpler words, since the sensoria of the patients are clear, the changes may be attributed to the influence of the endogeneous element of thought or perception, that is, to affectivity. Courbon and Turques[8] elaborate on the idea of depersonalization and changes of the sense of coenesthesia, seeing in the latter the source of the difficulty. However, one should not lose track of the fact that the "doubles" refer to interpersonal relationships, to individuals close to the patients, and not to persons or environment in general.

Of further interest is the psychoanalytic approach.[9] The following comment was made at the time when the phenomenon was considered to be an exclusively feminine manifestation. If so, then the difficulty would have its origin in the peculiarities of the libido development in the female. To explain why the little girl turns from her original love object, to the father, Freud postulated that the female child passes through a preoedipal stage before she reaches the oedipal one. During the preoedipal phase, her relationship to the mother is the same as that of the boy. When she reaches the oedipal phase, she turns toward the father, developing hostility toward the mother for various reasons, such as being compelled to share her love for the mother with others. This cardinal change of relationship produces in the female a feeling of distrust toward the environment or an object. On the other hand, a remarkable characteristic of the little boy's psyche is ambivalence. Therefore, the female mistrusts the environment, while the male will look for anomalies within himself in case of psychical disturbance. The writer believes that such a view is too rigid and is more theoretical than practical, since there can be no doubt that both sexes may show symptoms of distrust or ambivalence. This appears to be true, in particular, in any approach from the angle of bisexuality or intersexuality. The supposition might be ventured that—if the phenomenon of doubles were indeed a manifestation of female psy-

chology—it would be legitimate to speculate that, in a psychical disturbance, there would be a release of the repressed sexuality of the opposite sex in the male. This might be projected in the form of the illusion of doubles. Again, it might be that the libido of the homoerotic male develops in a fashion akin to the libido of the female.

From the angle of racial memory of man, the phenomenon of doubles may be interpreted as symbolic for "to die." According to Egyptian theology "to die" meant to go to one's double. The "double" was a distinct concept, was supposed to wander away when a person was ill or dying.[10]

As far as objective data are concerned, the illusion of doubles signifies a denial, negation or rejection of a person or persons, for various reasons—as shown by the case material. As a mental phenomenon, it belongs to the projecting and identification mechanisms. The degree of its expression depends upon the resources of the total personality and the degree of disturbance of affectivity. There is a regression to a magic form of thinking, as exemplified best in its height of expression in this paper's case 2.

Treatment is along the lines of psycho- and pharmacotherapy and their adjuncts, in accordance with the merits of the case.

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THINKING AND MOTILITY DISORDER IN A SCHIZOPHRENIC CHILD*

BY J. LOUISE DESPERT, M. D.

Disorders of thinking and motility have been studied intensively in adult schizophrenic patients. Little seems to be known about corresponding psychopathological findings in schizophrenic children. In the following case, a permanent record has been obtained with the aid of an automatic speech-recording device and with movies, which made a detailed psychopathological study possible.

Case Report

This eight-year-old Jewish girl, an only child in a family of low economic status, was seen for the first time at the age of four years, one month. She was then admitted to the New York State Psychiatric Institute because of inability to play with other children, assaultiveness, tantrums and "spells" of one year's duration. On admission, the mother described these "spells" in the following terms: "The day before or a few hours before it happens she usually has a coated tongue and her eyes are dull; she is quiet, refuses her food . . . She wants to do 'good things.' She thinks that if she is good it wouldn't happen. She has a pain (points to right upper abdominal quadrant). When it happens she holds her belly suddenly. She has a severe pain; she does not cry; she says 'Oh!' Her eyes look tortured. She tries to talk, she tries to pronounce the words and can't. It lasts about two minutes; she does not lose consciousness; there is no movement of any part of the body." She was said to have had these "spells" once every three hours for a day or a day and a night, during which she would be very drowsy; then she would become talkative, though her speech was not clear. It took her about two days to get back to normal. The "spells" as described, occurred at first every four or five weeks; at the time of admission, they were occurring approximately every 10 days, though they were milder. "Spells," as described by the mother and reported by her to have occurred at the onset of the illness, were not observed at the hospital.

*Read in part at the meeting of the New York Society for Clinical Psychiatry, March 13, 1941.

Family History. The paternal grandparents were said to have been withdrawn, indifferent individuals, more interested in Communism than in their home life.

The maternal grandfather, a Kappelmeister in Russia, later a music teacher in the United States, was unhappy, felt misunderstood, was subject to sudden outbursts of tears, and was irritated by his wife and by his children, except for the patient's mother who looked upon him as a god and experienced pleasurable sensations at the mere touch of his hand.

The father, a drug salesman, is 35 years old. At seven years of age he lost one eye in an accident, following which he became seclusive, and has shunned people through his life. He is an odd-looking individual with facial assymetry, a frontal scar, and one glass eye. He has peculiar ideas about sex, is unusually well-read on sex literature, and before his marriage had a liaison with a woman who was sexually attractive to him but whom he warned in advance he would not marry. When he became acquainted with the child's mother, he suggested to her "a sharing;" that is, that he enter a platonic marriage with the fiancee, while continuing sexual relations with the mistress, an arrangement which the mother rejected.

The mother, 35 years old, intelligent, aggressive, helps her husband in business. She was graduated with high honors from grammar school and high school; she went to high school and college at night, doing bookkeeping during the day. When she was 17, she seems to have suffered from a severe anxiety neurosis, characterized by insomnia, buzzing in the ear, and "eternal pounding" of the heart. She felt she was going insane (as feared and expressed by her own mother), lost all her friends, and was very unhappy. This condition lasted for about two years. She has also described hallucinations which she experienced for several years following her father's death (she was then nine years old). She could not go into the bathroom without seeing her dead father lying in the tub. At 28, when her child was 15 months old, she had a similar "episode," though not so severe. As regards the patient, the mother has been overanxious, overprotective and openly sadistic.

In the family history, there are also a "hypochondriac" paternal aunt—who makes the rounds of hospitals and has had several operations—and her son who, as a severe behavior problem, had been expelled from school.

Personal History. The child, Joan L., was born in Chicago on January 22, 1933, after three years of marriage with no other pregnancies reported. The child was unwanted and unplanned for. The pregnancy resulted after a break in the contraceptive technique. The husband was then without work, and there were financial difficulties. The mother worked through the seventh month of pregnancy, as she was the only wage earner. The sexual adjustment is said to have been a happy one at this time. The pregnancy was full-term; and prenatal care was obtained during the last month. The foetus is said to have been very active *in utero*. Labor lasted two days and two nights—the mother asserts that no ether was given to her, because she was a "charity patient." Forceps were used. The baby gave only a weak cry and was "all battered." Her weight at birth was seven pounds. About the "shocking" and "frightening" experience, the mother says, "I was so afraid to have a baby it broke my spirit a great deal," although she also insists that the child became "precious" as a result of this shock. She appears to have become obsessed with the "idea of perfect health," reading many books on the subject. She says, "I was so busy taking care of her perfectly, that I didn't have time to take care of her as a human being." The baby was breast fed for three months, following which bottle feeding was initiated. The psychomotor development was normal: She sat up at five months, walked at nine months, was fearless. During the first year, she was thin, active, hungry, and slept a great deal. The first tooth appeared at nine months. At about this time, the mother left for New York where the father was seeking a job, but returned to Chicago in one month. The child said her first word at 12 months, the mother commenting that the baby was slow in talking because the mother lived a lonely life and didn't talk to her. She did not see other children. At 15 months, Joan had measles with no sequelae. Following this, the mother decided to go back to work and went to New York, leaving the baby in Chicago. It is also at this time that the mother had her second so-called nervous breakdown. She spent

three months in New York, while the father returned to Chicago with the child and grandmother. At two years, the baby was trained for control of bowel and bladder. The mother was impatient with her and felt that training was longer than usual. Beginning at two years, the little girl was able to repeat nursery rhymes which were read to her, even though she did not understand the meaning of the words. At three years, her language development presented some peculiarity in the sense that she used very few words for communication with parents or children, but that she actually knew many words, with a preference for difficult ones. There was considerable pressure on the part of the mother in her drive toward perfection.

When the mother began to take Joan to play with other children at the age of three, she had to be watched because she hit them; she did not know how to play with them. When children came to the house, she behaved as if she and the mother "were spectators and the children the show." It is at this time (three years) that she began to have tantrums. The mother recalls the first one of these. It was "as if she was possessed by a fury." The onset was coincident with the mother's chance meeting with a former lover. For two days, the child had one tantrum after the other; she could not be stopped; she rolled on the floor and tore the bed covers to shreds. Then she became sleepy, did not feel well, and vomited. The episodes just described, called "spells" by the mother, recurred usually at meal time, every four or five weeks. At about this period (three to three and one-half years), she began to wet and soil again. From three and one-half to four years, she became gradually worse and the mother tried to avoid any cause for excitement. Because of the vomiting, the child was taken to several pediatricians who diagnosed "psychic vomiting with calcium deficiency." One pediatrician advised a nursery school. She did not make an adjustment there, had almost constant tantrums for five days, and was sent home. At four years, one month, she was brought to the New York State Psychiatric Institute, on March 16, 1937.

Course of Illness. Joan was at the Psychiatric Institute for about two months, then had whooping cough and was sent home. At the Institute, she was described as very aggressive and destruc-

tive. She talked a great deal in a rapid, singsong, lisping, babyish fashion which was difficult to understand. She ate greedily, smearing her hands with the food which she then rubbed on her face, grabbed at other children's food, became angry when they pushed her away. She wet and soiled, was in constant activity, rocking back and forth, rubbing her legs up and down, sucking the hem of her dress, had frequent tantrums, and was destructive in play sessions. The physical examination, including the neurological examination, and the laboratory data showed no deviations from the normal. There was a palpable spinal bifida occulta of the first sacral segment, confirmed by X-ray. Permission for pneumoencephalogram was not obtained. A psychometric examination gave her an I. Q. of 98 on the 1916 Revision of the Stanford-Binet Scale and 100 in the Minnesota Preschool Non-Verbal Test. During this first stay at the Psychiatric Institute, Joan continued to be very active and aggressive and showed a conspicuous indifference to physical pain. She wet and soiled; she ate newspapers, sheets and blankets, a behavior which was accompanied by severe gastrointestinal disturbances. Compulsive behavior was marked. She was ambivalent toward her mother and toward nurses. When her parents called on visits, she would greet them casually, then would begin to relate events in a thorough and relatively chronological order. When with her parents, her speech was less intelligible than otherwise.

She was readmitted to the children's service of the Psychiatric Institute after five months. The mother reported that the child was at first well behaved, then began to develop new forms of bizarre behavior. She began spitting profusely; she would cross her eyes and say she had "three mummies." She would walk blindly, hurting people and herself. She referred to her father as "the man who sleeps here and has bacon and eggs in the morning that man." When she was scolded for this, she would refer to him as Nathan, his given name, and ask, "When did we get Nathan? Did we get him in Chicago that time?"

When Joan was seen at the time of readmission (four years, nine months) by the writer, she was in bed talking to herself, leaning over the edge of the bed, looking at her innumerable spittles on the floor. She seemed to recognize the physician, but when the latter

asked who she was, she said, "You're a pest that's a pest that is a thing." On the ward, she was assaultive toward other children. Outside of this aggression, she was practically in a world of her own and did not mingle with the children. She was ambivalent toward physician and nurses saying, "I want to bite you, I love you." There was a great deal of concern about being a good girl or a bad girl. Her speech at this time was almost unintelligible and showed further deterioration. Neologisms were numerous; and her language, to a large extent, was made up of a jumble of meaningless syllables interspersed with plainly audible and well-articulated words. There were marked variations in pitch and volume, giving an oddly modulated effect, with the long phonetic "sentence" ending with a high pitch. Lisping, letter substitution and omission were also present. This speech was extremely difficult to reproduce phonetically, but an approximate example is given: "No what see to you this now . . . a man comes to neh in a minute . . . tell me why a fellow don't come . . . do you know nase I'm sitting here . . . nice loo do I say those things I say new things a new thing away . . . right a good nay . . . do you know what appetoh I don't know . . . whaw appetoh . . ." After having made a scribble on a paper, she called the physician's attention to it, saying, "Nase look this nase I made now . . . that is a phonah." (What is a phonah?) "A phonah is a bey." (What is a bey?) "That is a bey kooyah." There was no playfulness associated with the use of neologisms as would be the case with the normal child in his verbal play with neologisms. While she was at the hospital, a physician observed an attack which he described as follows: "She suddenly yelled, screamed, voided, and defecated, smeared wildly, and seemed to be out of contact." His impression was, "She seemed to be in a state of catatonic excitement." He ordered a pack which quieted the patient shortly. Several days later, Joan was observed to have two episodes of "drowsiness." She was seen by the same physician in the second of these. She was sitting by the table with her head in her arms and was roused only with difficulty. She answered questions slowly, but slightly more intelligibly than usual. She showed waxy flexibility. There were no pupillary changes, neck rigidity, or other neurological signs.

Psychometric examinations done during the second admission gave an I. Q. of 70 on the 1916 Revision of the Stanford-Binet Scale, and 81 on the Merrill-Palmer Preschool Test. The basis of most of Joan's failures was her difficulty with verbal responses. In a Rorschach test, "all interpretations seemed to be vague whole answers or cut-off wholes at the best." Insulin shock therapy was suggested by the writer at the time of readmission; but the mother refused to sign the release for it or for a pneumoencephalogram. The girl made a slight progress in her contact during the second admission; but the mother did not allow her to remain, because of alleged mistreatments reported by the child.

Since Joan's discharge from the New York State Psychiatric Institute, the writer has seen her at irregular intervals. A year and one-half after discharge, at the age of six years, two months, the I. Q. was 68 with a mental age of four years, two months; and the psychologist noted: "Scatter is extremely wide and success-failure pattern is quite extraordinary." The mother reported that the child had been entered at school "to make the child normal," but was expelled after biting and attacking children. At home she had a "bad attack of those spells again preceded by violent exhibitions of uncontrolled anger and contrariness, breaking windows and furniture. She had nightmares, woke up screaming, kept running to her parents' bedroom, scared to sleep alone." Joan did not mix with other children, but attacked them. Her behavior was quite erratic. She would run across the streets in heavy traffic, missing being killed several times. She could not be left alone. Seen by the physician about this time (six years, two months) she was quiet and inactive. When some crayons with which to draw were given to her, she chewed on the crayons, removing the paper from them without paying any attention to the physician. She had a constant irrelevant smile. She whispered to herself, with her back turned to the physician, and showed no interest in answering questions. Echolalia was marked. Speech articulation was more mature than when last seen. The girl continued using neologisms, explaining one by another when she was asked for an explanation. When asked what she did in school, she answered, "Just hang your coat and sit in a chair." She appeared preoccupied and at times suddenly stared in space as if she were hallucinated. There was a

marked tendency toward perseveration. She exhibited a touching compulsion. She became negativistic when the physician tried to get her to come downstairs, became rigid, and had to be carried part of the way. An electroencephalogram done at this time was said to be pathological, with no reference to specific pathology.

The mother reported that throughout the period following the discharge, she had taken Joan's problem in hand. She now understood the child's "emotional complex" and used a method which brought good results: namely, beating the child, which caused her to cry. "By making her cry, she releases her tension and doesn't have to have spells." The little girl was admitted to the Psychiatric Institute on October 18, 1939 for electro- and pneumoencephalographic studies; but the mother once more refused permission for the pneumoencephalogram. The report on the electroencephalogram showed diffuse cortical dysrhythmia. The child was admitted to school at seven and one-half years of age. She continued aggressive toward children and seclusive. She occasionally wet and soiled. However, Joan did stay in school when she found a sympathetic teacher. The teacher now reports that when she asks the child questions in class, she becomes excited and makes "queer" answers. Therefore, she leaves her alone. She has made little progress. The principal persists in her earlier opinion that Joan is "an idiot or crazy." At home, she is occasionally excitable and usually withdrawn. She does not mingle with children, and does not seem to know what to do with toys. The mother states, "She still talks through me to the world. It is now with her behavior a cycle just the same as when she had the spells." She has had no "spells" as previously described by the mother in the past year. A psychometric test done when the child was seven years, 10 months gave her a mental age of four years, seven months and an I. Q. of 63. At present, her behavior is quieter; she is passive, preoccupied, uninterested. At times, she appears hallucinated. She occasionally becomes excited. She shows no playfulness, but smiles almost constantly. A pneumoencephalogram done in the children's service of the New York Hospital on March 7, 1941 was negative.

Discussion of Symptomatology

Thinking. The child exhibits bizarre thinking and autistic thinking as seen in the following examples: (Referring to father) "That man who sleeps at my house and eats bacon and eggs in the morning that man—When did we get Nathan? Did we get him in Chicago that time?" (Referring to father and mother at home) "Mama nase live at home I tell you this now; those two new peoples like to be home with me every day." (Who are these people?) "They are mama they are those two people." (But who are they?) "My mama live at home." (That's only one, who's the other?) "That one that's Nathan--" (Referring to the physician and herself, the former engaged in writing a note and the latter in scribbling, she says) "Two people write down here, this one up to here (pointing to physician's head) that one up to here" (pointing to her own head). (Seeing a nurse with whom she was familiar give a key to the physician she says) "One person give a key to one person." There are many similar examples in the record. The intellectual deterioration is reflected in the lowering of mental level. Animism is noted, as is evidenced in a statement that "the shoe wants to be a good thing." There are numerous neologisms. The language disturbances are characterized by disintegration, as shown by the breaking down of the sentence into words and even syllables, resulting in word salad and even inarticulate speech. Speech is not used as means of contact and communication, and it presents characteristic deviations from the normal, that is to say, variations in volume, pitch and rhythm. Whispering of unintelligible speech is also noted. The immaturity of speech development, which is a part of the regression pattern, still shows, to a degree, lisping and letter substitution.

There are disturbances of perception as evidenced by the strong suggestion of auditory and visual hallucinations.

The orientation in time, space, and person is disturbed. Joan asks in a familiar set-up, "Where am I?" She calls people around her, even those as familiar as the physician, by a variety of names without consideration as to sex or person. There is a compulsive concern with time, and the girl has been known to have an anxiety reaction when the quest for this particular information was not satisfied.

"Phonographismus" is evidenced to a marked degree. The child may not appear to be interested in conversations taking place before her, but a day or two later, she may reproduce these conversations in a phonetically almost literal fashion.

Affectivity. There are marked disturbances of affective contact as seen in the withdrawal, and the alternation of alert or excited behavior with stuporous behavior. The alternation is not so marked at the present time as it was four years ago, but it exists nevertheless. Joan's mood is usually absorbed and preoccupied, with outbursts of excitement which are not always explainable. One such outburst was witnessed recently when the child, of whom moving pictures were being taken, would not comply with the suggestion to go back into focus. She suddenly began to bite her own arm, getting more and more excited, jumping and panting as she bit more deeply.

Dissociation of affect is noted. There are also periods of severe anxiety which were more frequent and severe when the girl was four years old, and which have gradually decreased in intensity and frequency. At such times, she becomes wildly excited, screams, and emits a peculiar neighing sound. She has given some hint as to the nature of her anxiety when she described briefly dreams in which she is "afraid for mama."

Her ambivalence is marked and was especially conspicuous earlier in the history when she would say to the physician, "I kill you I like you." She seems to be afraid of her own aggressiveness and has been heard to say, "Pinch me so I won't pinch you." She was also previously more aggressive and assaultive than she has been in the past year; she still assaults other children, but infrequently. There is an impulsive character to this assaultiveness. The lack of reaction to painful stimuli was noted in the neurological examination, and was also striking on one occasion when Joan caught her arm between the leaves of a folding table, an experience which would be extremely painful to anyone. She made no effort to move her arm and stood with a mask-like expression. There are exhibited a number of compulsions. She goes into an anxiety panic when, as she watches the physician write on a page, she notices that the latter does not write to the end of the page. The same type of reaction prevails if the physician does not answer the

telephone. Once, while presented at a staff conference, she insisted on touching everybody after she had started to touch the person nearest to her.

There is marked perseveration. One morning she kept calling this physician "Mr. Jones" after a psychometric examination with Dr. Jones. Another time, she called three doctors, two men and one woman, "Dr. Despert." This same perseveration is seen in such things as drawing, motor behavior and speech, and it is extensive. She is negativistic, a characteristic which she has often demonstrated. Regression, as shown by the relapse in training, eating of non-edible materials, and the spitting, all of which were marked at the onset, has decreased at the present time. Joan wets and soils only infrequently.

Motility. The excited motor behavior has been described. There are primitive, purposeless movements of hands, arms, legs, as well as head. The motor behavior presents the same character of dissociation which has been seen in the thinking and affective spheres, with considerable variety in patterns and purposelessness of activity. There is also considerable oral activity, with chewing and sucking movements of the lips, also a protrusion of the tongue and the lips which is strongly suggestive of *Schnauzkrampf*.

Differential Diagnosis

On historical data, epilepsy and the post-encephalitic syndrome can be ruled out. The differential diagnosis stands between a schizophrenic syndrome and a degenerative disease in which schizophrenic-like symptoms occur. On repeated neurological examinations, there is no evidence of organic disease in the course of a four-year followup study. The electroencephalograms, while pathological, are not characteristic of any pathological entity; and the pneumoencephalogram is negative.

The symptomatology, as described, would probably not be questioned as being indicative of schizophrenia if the patient were an adult. The outstanding symptoms are: thinking and perceptual disorder, mental deterioration, language and speech disturbances, dissociation of affect, alternation between excitement and semi-stuporous states, negativism, impulsive behavior, and primitive motor behavior. The evolution of the syndrome in the course of

the four-year followup is also characteristic. According to the literature, there is a divergence of opinions, however, even as to whether schizophrenia can occur under varying age levels. It is said, for instance, that delusions or hallucinations cannot occur in children because of immaturity of intellectual organization. However, the intellectual organization of the child at various developmental levels is not well known. The many examples cited, as, for instance, the one referring to the identification of the father, indicate that the thinking disorder in this case is on the basis of an affective dissociation. A normal young child may have difficulty in giving a complete picture of his father; but however simple his account may be, it is colored by his own emotional experience toward it. This child behaves as if she had no affective relation to her environment.

Prognosis

According to most writers, the prognosis in child schizophrenia is poor. In the case of this child, regression and intellectual deterioration have been marked and have taken place over a short period of time, that is to say, from three to six years. From the age of six years, there is a tendency toward stabilization of the symptoms; and later examinations up to the present time show that the regression and intellectual deterioration have not progressed. The behavior also tends toward a relative adaptation, with no increase in the intensity of the behavior anomalies. It seems that social adaptation will remain inadequate and that normal intellectual progress and development will be prevented by the affective dissociation which has taken place, and which at this time is fixed at a level of chronicity. The prognosis therefore is poor, although it is possible that the disease may not progress toward more severe deterioration until additional stress is placed upon the personality.

There have been indications that Joan was more accessible to treatment during the second admission at the New York State Psychiatric Institute (from four years, nine months to four years, 11 months), as the writer then established a rapport with the patient, though fairly superficially. The withdrawal from the hospital made it impossible to continue and, therefore, to ascertain whether a more permanent affective contact could be effected. At

the present time, rapport with this writer is considerably less adequate than it was then. Furthermore, there has been a further blunting of emotional reactions as seen in the greater indifference toward the environment and the lessening of emotional extremes, all of which represent an attempt to deal, at a pathological level, with a conflict which no longer arouses violent affective reactions. According to most writers, results from intensive psychotherapy have been poor.

Etiology

Etiological factors are not wanting in this case. These are the same factors which were found to be present in a previous study of schizophrenic children admitted to the Psychiatric Institute.* The history shows a marked familial tainting, as seen in the social attitudes of the paternal grandparents and the maladjustment of the maternal grandfather. Both parents have neurotic characteristics, the mother's being more prominent. In the case of the mother, the neurotic symptoms are so severe as to have warped her attitudes strongly in handling the child. The mother's relationship to her own father was pathological; and his death brought on psychotic symptoms; namely, visual hallucinations associated with anxiety over a period of years. Before her marriage, she suffered from a severe anxiety neurosis and again from a somewhat similar episode when Joan was 15 months old. The mother's aggressive and sadistic attitudes have had a significant repercussion on the failure of this child to adjust to the world of reality. It can be said that Joan's mother has created for her child an early pathological environment from which almost all other influences were excluded. Her rejection of the child made it impossible for her to create the atmosphere of affection which is an essential requirement of an infant's life. The marked ambivalence of the mother is reflected in the child's own ambivalence toward the outside world. The external world—which for the average child is to a large extent one of play and gratification—becomes full of frustrations for this girl; and her withdrawal from the external world is a reaction to such frustrations. The rôle played by the father is more obscure, but light may be cast on Joan's attitude by the statements she has made regarding her feeling of strangeness toward him.

*Despert, J. Louise: Schizophrenia in children. PSYCHIAT. QUART., 12:366-71, April, 1938.

The speech-language history of this patient is of considerable interest. She exhibits to a marked degree at the present time, and has exhibited in her earlier history, a characteristic described by the writer as one of dissociation between language-sign and language-function. The mother recalls that Joan did not use words to communicate with people around her but was, at the same time, able to retain and use difficult words and many of them. This points to an early affective dissociation. The significance of this affective dissociation, as reflected in the anomaly of language development, has not been emphasized enough and should be recognized and further investigated, since the use of early language in the child represents his first attempt to employ an adult means of communication with his environment.

Since, in childhood, language expression is in a constant state of evolution, it is evident that the early deviations which at first only reflect the affective dissociation, later become also a contributory factor in increasing the feeling of strangeness, and in decreasing the capacity for affective contact and intellectual development.

Summary and Conclusions

The case of an eight-year-old girl who has been followed by the writer for four years is presented, and the symptoms analyzed from the point of view of schizophrenic criteria. Organic genesis has been ruled out, the final step being a negative pneumoencephalogram obtained on March 7, 1941. In the case of an adult, the symptoms noted in this child would be acknowledged as characteristic of schizophrenia. They are: specific thinking and perceptual disorder, mental deterioration, specific language and speech disturbances, dissociation of affect, alternation between excitement and semi-stuporous states, negativism, impulsive behavior, and primitive motor behavior. The evolution of the syndrome is also characteristic. The onset is placed at three years of age; and since then, there has been a progression of symptoms, followed by a relative social and emotional adaptation to the environment. This relative adaptation is at a functioning level which is not so well integrated as that observed before the onset of illness.

The diagnosis of schizophrenia was made early in this case on the basis of the affective dissociation which was manifested in the

disintegration of the speech-language function. Severe behavior disorders, associated with regressive characteristics, are not uncommon in young children with acute emotional disturbances. However, in the absence of affective dissociation, the diagnosis of schizophrenia cannot be made, however severe the behavior disorder. This was clearly brought out in the case of this child, since coincidentally with her first stay at the New York State Psychiatric Institute, a boy of three and one-half years, Wilbert S., was admitted with a superficially similar pathological picture. He exhibited assaultiveness toward members of his family and neighbors, adult or child; tantrums; selective mutism; soiling and defecating. However, there was lacking any evidence of intellectual deterioration, or of perceptual and thinking defect on the basis of affective dissociation; and the diagnosis of schizophrenia, however bizarre the behavior, could be ruled out.

Affective dissociation in the young child can be diagnosed only with some difficulty, owing to the present lack of knowledge of early intellectual function and the relation of emotional factors to symbolic structure at various developmental levels. Because of this lack of knowledge, intellectual and perceptual defect is usually evaluated through comparison with the schizophrenic adult, whereas it should be evaluated in terms of deviations from the normal child of similar developmental level. Whether the patient be adult or child, the specific deviations from the corresponding normal individual define the pathological syndrome.

Studies of early language and thinking development from the point of view outlined here should throw a light on the question of criteria for schizophrenia in children.

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A STUDY OF THE USE OF CURARE IN METRAZOL CONVULSANT THERAPY WITH SOME ELCTROENCEPHALOGRAPHIC OBSERVATIONS

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The action of curare in paralyzing the skeletal musculature has been used both in the experimental animal and in man to relieve muscular spasms and rigidities due to a variety of conditions.[1, 2, 3, 4] Recently, owing to the frequent occurrence of fractures as a complication in metrazol convulsant therapy, Bennett[5] and more recently Gray and his coworkers[6] have reported on its use as a preventive measure against the occurrence of such complications.

In this paper, the writers report experience with the administration of curare as a preventive measure in a group of mental patients receiving metrazol convulsant therapy. Some observations on electroencephalographic findings are also noted.

Procedure.

Aside from the regular medical examinations, the spine of every patient was X-rayed both before and after a course of curare and metrazol convulsant therapy. Treatment was administered in the morning before breakfast. During the first treatment the curare was injected at the rate of 1 ml. in 45 seconds. The condition of the patient was carefully watched for the appearance of any untoward symptoms. Depression of respiration and laryngeal stridor were the only untoward symptoms which were observed in the group studied; and only on a few occasions was it found necesssary to stop the injection of curare because of these symptoms. Although several ampules of prostigmin (1:2000) were always kept on hand, this was not used, since artificial respiration by manual compression of the chest was found adequate as a resuscitating measure. It is of interest to point out in this connection that Gray and his coworkers reported that they used artificial respiration for three to five minutes even when prostigmin was administered.

The early symptoms of curare action were usually ptosis of the eyelids, at times some thickness of speech and, in a few patients, a

feeling of drowsiness. As the injection of curare was continued, the patient was asked from time to time to raise the head off the table. When paresis of the neck muscles, which was almost invariably accompanied shortly thereafter by weakness in the lower extremities, occurred, the injection of curare was always stopped. The needle was allowed to remain in the vein; and the syringe containing the curare was replaced by one containing metrazol. The blood pressure—which was taken before starting the injection of curare—was taken again; and the metrazol was then rapidly injected. By using this slow rate of curare injection during the first treatment, it was felt that one was better able to judge the size of the dose required to produce the desired state of muscular paralysis. The dose was usually 10 ml. or less of the special curare solution and was not necessarily dependent on body weight. It was found that if the rate of injection was increased to 1 ml. in 30 seconds, the appearance of paresis of the neck muscles might be delayed for one to three minutes. Since the presence of paresis of the neck muscles was used as an indication of adequate dosage, the slower injection rate was found preferable for establishing the dose for each individual case. The writers also believe it is a safer procedure. After establishing the nature of the response of a patient to a particular dose of curare, one may, in subsequent treatments, increase the rate of injection of the first half of the established dose to 1 ml. in 30 seconds and decrease the rate of the latter half of the injection to 1 ml. in 45 seconds. In spite of this increased rate of part of the injection, the appearance of paresis may be delayed from one to three minutes; and it is advisable, therefore, to wait for this short interval after the established dose is injected before deciding whether to inject any more of the drug.

Records of the brain waves were obtained by a two-channel electroencephalograph using the bipolar method with fronto-occipital, fronto-motor and motor-occipital leads.

Observations

A total of 100 combined treatments of curare and metrazol convulsant therapy was administered to 11 mental patients. The convulsive seizures and subsequent loss of consciousness produced by the metrazol in the presence of curarization was essentially similar

to that produced without curare, except that the force of the muscular contractions, particularly of the clonic phase was markedly diminished.

One of the patients (Case 9) had a marked compression fracture of the fourth and fifth dorsal vertebrae, due to a previous course of metrazol convulsant therapy without curare. With the aid of curare, another course of convulsant therapy was given to her without producing any further detectable injury to the spinal column. No fractures and no dislocations occurred in any of the patients. The clinical effect of the convulsant therapy in each case is given in Table 1. It will be seen that some of the patients improved or recovered after one or two convulsions and that others did so after a longer course of treatment, while some failed to improve. It is the writers' impression that the curare probably did not interfere with the efficacy of the convulsant therapy, although a much more extensive investigation would be required to establish this point. The few other investigators who have reported upon this subject, however, also have been of this opinion. A number of the patients, as will be seen from the table, had one or more relapses of mental illness which may have been due in part to the fact that the courses of treatment were not longer.

Bennett[5] was of the opinion that curare tended to allay the apprehension of the patients toward the convulsant therapy. In the writers' experience, however, this usually was not the case. The patients displayed various degrees of apprehension and were frequently reluctant to take the treatment.

As will be seen from the table, the special curare solution used for this study did not produce any decrease in blood pressure; in fact, there was usually a tendency to a slight rise in systolic pressure immediately after the injection of curare. Some curare preparations have been known to produce marked signs of cardiovascular collapse which rendered them unsuitable for clinical use.[7] This, however, did not occur in any of our patients with the special curare solution with which we were supplied. Following the convulsion due to metrazol, there was almost invariably a marked transient rise in blood pressure.

Aside from the occurrence of depression of respiration and laryngeal stridor which was previously described, it may be of in-

TABLE 1. RESULTS OF CURARE AND METRAZOL CONVULSANT THERAPY

Patient and Case No.	Age	Sex	Weight	Diagnosis	Duration of illness†	Previous attacks, number	Curare	Metrazol	No. of treatments before improvement*	Blood pressure** Before	Immediately after curare	Immediately after convulsion	Complications and remarks
	yrs.		lbs.				ml.	ml.					
A. F. No. 1	41	M	135	M. D. D.	8 mo.	0	10-12	7-8	3 (10)	126/88	128/98	170/84	Slight laryngeal stridor, several relapses of psychosis
V. T. No. 2	24	M	156	M. D. D.	8½ mo.	0	10-13	9	5 (5)	128/82	128/82	174/100	Refused further treatment
B. G. No. 3	42	M	150	M. D. D.	1 yr.	0	8-10	9	4 (8)	172/100		200/112	Relapse
L. B. No. 4		M	112	D. P. C.			7-10	5-6	6 (14)	110/80	124/84	164/86	Relapsed after 1 week without treatment
H. M. No. 5	36	F	111	M. D. D.	20 mo.	0	10	6	—‡ (7)	126/76	136/90	184/98	Disorientation and memory defects produced. Discontinued therapy
S. B. No. 6	33	F		M. D. D.	19 mo.	0	5.6	6	4 (4)	164/104	168/110	200/110	Felt better, refused further treatment
S. M. No. 7	31	F	97	M. D. D.	8 mo.	0	7-8	5	2 (3)	108/66	114/76	200/106	Recovered after 2 treatments
V. D. No. 8	35	F	108	M. D. D.	13 mo.	1	6-7	6	1 (5)	122/86	130/92	186/124	
S. T. No. 9	44	F	111	I. M.	14 mo.	0	8	6	4 (30)	142/92	140/88	204/118	Apnea, artificial respiration. Several relapses
S. S. No. 10	36	F	124	D. P. P.	21 mo.	2	7-9.6	5	3 (13)	140/80	136/96	192/94	Apnea, artificial respiration. Relapsed
B. S. No. 11	31	F	120	D. P. U.	1 yr.	0	8	5	— (1)	124/78	124/86	170/100	Refused further treatment

*The number in parentheses indicates the total number of treatments given.

**A representative group of blood pressures for one treatment is given in each case.

†Duration of illness refers to duration of attack for which patient was treated.

‡Therapy was discontinued due to the development of signs of possible organic brain injury. Patient eventually recovered (in about three months) from both organic complications and psychosis.

M. D. D.=Manic-depressive (depressed).

D. P. C. =Dementia præcox (catatonic).

D. P. P. =Dementia præcox (paranoid).

D. P. U. =Dementia præcox (undetermined type).

I. M. =Involutional melancholia.

terest to record the occurrence of a marked disturbance in respiration in one patient about 10 minutes after the convulsive seizure. He was apparently recovering from the treatment and had been transferred to his bed when he suddenly showed marked difficulty in breathing and became intensely cyanotic. The condition was rather alarming. Artificial respiration was instituted, and the patient recovered after a few minutes. The occurrence of laryngeal stridor is due, it is believed by some, to the induced paralysis of the muscles of the vocal cords. However, in some experiments carried out on dogs,[1] difficulty in respiration has been reported similar to that which appeared in the man just described. It was thought that this was due to paralysis of the vocal cords of the dog; and a tracheotomy was performed by the investigators. This, however, failed to relieve the respiratory embarrassment. At autopsy, the lungs of the dog appeared rubbery and it was believed that spasm of the bronchial musculature had perhaps been responsible for the respiratory embarrassment and death. Histological section of the lungs failed to reveal any pathology. It is obvious, therefore, that although no deaths have occurred thus far with the curare used in conjunction with the metrazol convulsant therapy, its employment probably is not entirely devoid of risk. However, cautious use of the drug should tend to minimize the risks and help to extend the use of metrazol convulsant therapy to cases in which, for various clinical reasons, it would be undesirable to expose the patients to the stress of severe convulsions.

Electroencephalographic observations were made on 10 patients before, during and at varying intervals (from several weeks to six months) subsequent to the end of treatment. In five cases, records were taken simultaneously with the injection of curare and metrazol. In two cases, the effect of curare alone was studied.

The changes in the patterns of the brain waves following the administration of curare plus metrazol were similar to those produced by metrazol alone as previously reported by Strauss and Rahm.[13] No changes which at present would be considered abnormal were observed in the electroencephalogram when curare alone was administered.

Owing to the uncertain composition and varying toxicity of different preparations of curare, the use of beta-erythroidin hydro-

was treated.
‡Therapy was discontinued due to the development of signs of possible organic brain injury. Patient eventually recovered (in about three months) from both organic complications and psychosis.

chloride has recently been recommended as a substitute. The substance is a pure chemical compound and produces curare-like paralysis[8, 9, 10, 11] and has previously been studied for its "lissive" effect in certain muscular rigidities and in spasms occurring in some neurological conditions. Its use in metrazol convulsant therapy is being investigated further.[12]

Summary and Conclusions

1. A group of 11 mental cases were treated with curare and metrazol convulsant therapy.

2. A total of 100 combined treatments was given; and no fractures or dislocations occurred in any of the cases. All spines were checked by X-ray before and after treatment.

3. The small number of treatments required to produce some degree of clinical improvement would seem to indicate that curare probably does not interfere with the therapeutic effect of convulsant therapy.

4. The effects of the special curare preparation on respiration and blood pressure are reported.

5. The administration of curare alone in doses sufficient to produce adequate paralysis of the skeletal musculature produced no notable changes in the electroencephalograms.

6. The electroencephalographic changes following metrazol convulsant therapy modified by curare were similar to the changes produced by unmodified convulsant therapy.

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PERSONALITY AND HABITUS IN ORGANIC DISEASE*

BY EUGENE DAVIDOFF, M. D., EDWARD C. REIFENSTEIN, JR., M. D., AND GERALD L. GOODSTONE, M. D.

In an effort to ascertain the reaction of individuals to organic disease, the writers investigated a series of 100 consecutive cases admitted to the ward medical service of a general hospital.† The majority of these persons were suffering from subacute organic disease. An analysis was made of these patients, with respect to adjustment to hospital routine, previous personality and physical habitus. An attempt was made to correlate the data thus obtained (1) to gain some conception of the rôle played by the personality and the habitus in physical disease and (2) to provide material for comparison with a similar group of patients admitted to a psychopathic hospital with physical and mental disease.

I. Personality Integration in Relation to Hospital Adjustment

1. analysis of statistics

When the 100 cases were analyzed with respect to adjustment to the hospital routine, it was found that 56 patients had adjusted well and 44 poorly. These groups were then further subdivided, according to the previous personality integration of the individuals. There were 48 patients who were well-integrated and eight who were poorly-integrated in the group which adjusted well.

2. personality of the well-adjusted ward patient

A. *Well-Integrated*

In considering the 56 patients who reacted well to the hospital routine—48 of whom exhibited a previously well-integrated personality—initial or transitory maladjustment due to severe physical illness, particularly cerebral involvement, had been present in 15 individuals. As the acute phase of the disease process subsided, however, these patients became adequately adjusted, and they were classed, therefore, as reacting favorably.

Latent complex-formations or mild psychoneurotic tendencies, which are uncovered at times in reaction to certain physical illnesses or in reaction to hospitalization, are present in many pa-

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†The Syracuse University Hospital, in collaboration with Dr. Albert A. Bailey.

tients. Some psychiatrists contend that a particular type of individual is predisposed to a specific type of illness. These two important aspects of the problem are not considered in this communication.

Here is a case illustrative of the well-integrated patient.

Case 1. W. K., a male, aged 57, pyknic habitus; diagnosis, pernicious anemia of six years duration complicated by posterolateral sclerosis. The patient had exhibited no developmental abnormalities during childhood or adolescence. He had worked steadily as a carpenter and was a good provider. He had many friends and was well adjusted in his marital relationship. Because of his illness, he had been unable to work for four years and had become almost destitute without losing his morale. He made an excellent adjustment in the hospital, accepted his treatment cheerfully, and made an effort to understand his illness and to cooperate in the therapeutic regimes.

B. *Poorly-Integrated*

There were eight individuals with mild psychoneurotic tendencies who reacted well to the hospital routine. Their favorable response was due to such factors as: the psychotherapeutic effect inherent in hospitalization; the sympathetic attitudes of the hospital personnel; the understanding approach of the physician; the satisfying of masochistic tendencies; and the change or improvement in environment—with temporary relief from the stress and strain of annoying conflicts and unwelcome responsibilities which they were reluctant to face in their daily family, occupational and social existence. Such persons enjoy the retreat from reality, particularly if they have convinced themselves that it is forced upon them by their physical illness. They welcome a state of dependence, and capitalize on it to obtain attention through overcooperativeness. This type of individual prides himself on being a good patient—to the surprise of relatives with whom he has had friction—thus suggesting that his extramural difficulties have not been his fault. Although many of these attitudes may favor a hospital adjustment which is desirable for the physical illness, they are harmful to the patient because they augment psychoneurotic tendencies and impair future emotional adjustment. However, when a psychoneurotic develops a real problem, such as physical illness, the neurosis frequently undergoes a recession. This type of person

will not continue to adjust satisfactorily following discharge, unless the personality integration, as well as the physical illness, is considered in devising followup care.

The case cited here is illustrative.

Case 2. L. G., female, aged 20, asthenic habitus; diagnosis, acute rheumatic fever. The patient was indecisive, worrisome, submissive, and lacking in ambition. She had curtailed her education because of economic reverses in the family and had accepted a position below her intellectual attainments, but she did not work steadily. She had few interests and was given to romantic daydreaming. She felt guilty about her dependence on her family and was unhappy at home. In the hospital, she was good-natured and lively; she calmly accepted her illness and the fact that her future activities would be greatly restricted. She was cooperative and apparently well-adjusted. However, on going home, she became more despondent and discouraged than prior to her hospitalization.

3. PERSONALITY OF THE POORLY-ADJUSTED WARD PATIENT

A. *Well-Integrated*

Of the 44 patients who reacted poorly to the hospital routine, 14 revealed previously well-integrated personalities. These individuals adjusted poorly to hospitalization because of physical, social and economic factors. Their unfavorable response resulted from such circumstances as: debilitation accompanying the physical illness; ignorance of the disease process on the part of the patient and his family; unsympathetic attitudes of physicians, nurses and social service workers; insecurity resulting from dependence; fear of loss of position; poor supervision prior to hospitalization; lack of cooperation of the family with the hospital regimen; internal friction in the family; and the expense of hospitalization. In these patients, the problem of adjustment was predominantly at the conscious level. At times it was difficult to differentiate between the well-integrated individuals who adjusted poorly because of physical, social and economic factors, and the person who reacted poorly because of mildly neurotic tendencies. However, in the former, the unconscious factors, while present, were minimal. Of all the poorly-adjusted patients, those in this group are most amenable to a psychotherapeutic approach by the physician, to an intelligent utilization of social service facilities and to a carefully planned followup regimen.

The following case is cited to illustrate this group.

Case 3. L. M., male, aged 15, asthenic habitus; diagnosis, active rheumatic heart disease and rheumatic pneumonitis. The patient had been friendly, frank and cheerful. He had had many acquaintances and had done well in school. He had helped willingly to support the family by working as a newsboy in his spare time. His mother was submissive and oversolicitous; his father dominating, irritable and strict in his attitude toward the patient and his siblings. The father had forced the boy to sell papers, although he knew he was ill and without proper clothing. In the hospital, the patient adusted poorly. He was fearful and easily upset (particularly after a visit from the father), indifferent to the outcome of the treatment, and passively resistant to advice. He evaded discussion of his future. Following discharge, the boy attended clinic irregularly but did attempt to curtail many of his activities. His father continued to maintain a rigid attitude and persisted in his unreasonable demands. These adverse circumstances were modified when the situation was adequately explained to the father. The boy subsequently made a more satisfactory adjustment.

B. *Poorly-Integrated*

Of the 44 patients who reacted poorly to the hospital routine, there were 30 who exhibited previously poorly-integrated personalities. Eleven of these were moderately neurotic and 19 severely neurotic or psychotic. As already noted, it was difficult at times to differentiate between the well-integrated individual who adjusted poorly because of physical, social and economic factors and the person who reacted poorly because of mildly neurotic tendencies.

a. The moderately neurotic individual—The 11 moderately neurotic individuals adapted poorly to hospitalization because of the following factors: slowness in reaction to some changes of state; hostility to new authority; aggressiveness; stubbornness; "spoiled child" reactions; absence or restriction of constructive interests and outlets for diversion; fear of new experiences; naïve attitudes; unwillingness to face symptoms or treatment; anxiety and overanxious attitude toward disease; unwillingness to accept restriction of motion; restlessness; satisfying of masochistic tendencies; enjoyment of illness and attention; utilizing of illness as an escape; submissiveness; lack of energy; indecision; feeling of being dependent, insecure, different or inferior; moodiness; irritability; self-preoccupation; desire to dramatize experiences; tendency to

appear strong by minimizing illness; tendency to appear weak by exaggerating illness; minor sexual or marital difficulties; and attachment or antagonism to family or one member of the family. In contrast to the severely neurotic individuals, these patients give a more reliable history and a better evaluation of themselves; and they possess more insight.

Here is an illustrative case.

Case 4. G. L., female, aged 17, dysplastic habitus; diagnosis, diabetes mellitus of one year duration. She suffered from dysmenorrhoea, cystic ovaries, excessive weight, polyuria, and polydipsia. She was emotionally unstable, worrisome, immature sexually, easily upset, childish and indecisive. She had many acquaintances and several "boy friends," and was fond of parties. The patient was attached to her alcoholic father, was dependent upon him, and was jealous of her sister. There were frequent quarrels in the family in which she took part. In the hospital, she was unstable, did not react well to restriction of activities, failed to appreciate the seriousness of her illness, and wanted to be discharged before the diabetic regimen was established. Following discharge, she attended clinic irregularly because she was afraid of rehospitalization.

b. The severely neurotic or psychotic individual—There were 19 individuals who exhibited more severe aberrations in reaction. Five showed definite functional psychoses, two were mentally defective; three had psychopathic personalities; and the rest were severe psychoneurotics. These persons presented manifestations similar to the moderately neurotic patients but of more pronounced degree. In addition, they presented certain more fundamental defects in personality integration. Prominent features observed in these patients include: poor reaction to change of state; emotional instability or phlegmatic behavior; paranoid bias; mental deficiency; psychopathic traits; marked parental attachment; excessive dependence; unwillingness to overcome obstacles; lack of interest and apathy; indulgence in fantasy; latent and overt homosexuality; hypomanic and depressive tendencies; moderate hallucinatory or delusional states; feelings of inadequacy; compulsive or ruminative states; marked defects in sexual adjustment, such as impotence or frigidity; narcissism; masochistic or sadistic traits; poor adjustment in familial, occupational and social situations ambivalent attitudes; mechanisms of escape from reality; desire to capitalize de-

fect and prolong hospitalization; desire to punish the family; agitation and restlessness; anxiety states and phobias; irritability and marked defiance; and "finicky" behavior with set reaction patterns. These patients concealed facts, gave unreliable histories and inadequate evaluations of themselves, and possessed defective insight. All these patients could have been—and one-third of them should have been—admitted to a psychiatric hospital.

The following cases illustrate some of these manifestations.

Case 5. J. P., male, aged 15, asthenic habitus, diagnosis, acute rheumatic fever. The patient was worrisome, depressive, seclusive, concealing and unfriendly. He blamed himself for the death of his mother, who had succumbed during his birth. He had been dissatisfied at an orphanage and presented a disciplinary problem. In the hospital, the patient was depressed and uncommunicative. He took no interest in his surroundings, had mild paranoid delusions, and a hopeless outlook. He was seclusive and did not associate with the other patients. When his physical illness improved, he remained in bed, and showed no desire to recover.

Case 6. M. C., female, aged 65, dysplastic habitus; diagnosis, diabetes mellitus complicated by arteriosclerotic heart disease. The patient was stubborn, restless, defiant, argumentative, overtalkative, pessimistic, moody and fanatically religious. She did not adjust well to her marriage. She refused to divulge many facts in her life history. In the hospital, she complained that nothing was being done for her and exhibited a paranoid attitude toward the physicians and nurses. She feared that insulin would cause her death and refused to take it.

II. Hospital Adjustment in Relation to Personality Integration

When the 100 cases were analyzed, with respect to their previous personalities, it was found that 62 of the patients had been well-integrated and 38 poorly-integrated. Of the latter, 19 exhibited moderately psychoneurotic tendencies, and 19 severely neurotic or psychotic manifestations. Of the 62 well-integrated persons, 48 adjusted well to hospitalization, and 14 reacted poorly. Of the 38 poorly-integrated patients, eight moderately neurotic individuals adjusted well to hospitalization, and 30 responded poorly. The factors contributing to the type of adjustment have been presented in the preceding section.

III. Constitution

The classification of the cases according to habitus, and the correlation of body type with personality, presented many difficulties. The major problem was the selection of criteria with which to classify the body configuration.

Early classifications produced two great antithetical groups, such as the habitus phthisicus and the habitus apoplecticus of Hippocrates; the asthenics and the arthritics of Bauer; the hypo- and the hypervegetative types of Pende; and the linear and the lateral types of Stockard. Recently, more elaborate classifications have been evolved, such as the ovarian, the suprarenal and the pituitary of Sigaud; the genital, the pituitary, the suprarenal and the thyroid of Zondek; the hypoplastic, the euplastic, and the hyperplastic of Glasmer; the asthenic, the pyknic, the athletic and the dysplastic of Kretschmer; and the hypofeminine, the feminine, the hyperfeminine and the virile of Bayer. Since most of these schemata were descriptive, and were not based on accurate measurements, they originally appeared to the present writers to be of less objective value than a classification utilizing actual skeletal measurements.

Accordingly, the writers employed some of the anthropometric measurements and indices devised by Clegg for male patients. His technique utilizes exact mensuration of the skeleton, which is relatively constant for a given adult individual and largely independent of changes in muscular development and in nutrition. These measurements were, therefore, suited to patients with organic disease. It was not possible to draw any definite conclusions concerning body type from these multiple measurements or indices, since they failed to establish average configurations, or specific types, and failed to make allowance for nonskeletal variations.

From the writers' data, were calculated a series of single indices, also some of the general indices, such as those of Pignet, Black, Wertheimer-Heskett, and Davenport. The results were again equivocal. The findings are in accord with Freeman, who has stated that "no single index or even index of indices has satisfactorily shown anything but a unimodal frequency curve with typical contrasting examples at either end and less characteristic intermediary types in between."

Because the objective skeletal mensuration procedures failed to produce a satisfactory segregation of body types, it was decided to turn again to descriptive methods. The classification of Kretschmer was followed because it has been so widely employed, although the writers recognize its defects. The original groups were modified, in accordance with the later interpretation of Kretschmer, the contributions of Lewis and the recent endocrinologic advances. The "athletic" type was eliminated because it was considered to be a mixed varying type tending toward the asthenic. The asthenic type was considered as regressive or hypoplastic, the pyknic type as compensatory or hyperplastic, and the dysplastic as the type with endocrine dyscrasia, inherent or early developmental defect or congenital anomaly. The dysplastic type represents, in general, the deviate group. The writers feel that the habitus is a body manifestation of the state of balance between the catabolic and the anabolic processes which are occurring in the individual. Just as introversion represents a predominating tendency or potentiality of the personality, so dysplastic and asthenic body type represents a predominating tendency or potentiality of the habitus, in relation to endogenous and exogenous factors. When the catabolic processes are in excess, the patient reacts poorly to disease.

When the 100 cases were analyzed according to body type, it was found that there were 54 asthenics, 12 dysplastics, and 34 pyknics. Of the asthenics, 30, or 56 per cent, were well-integrated; and 24, or 44 per cent, were poorly-integrated; 28, or 52 per cent, were well-adjusted to the hospital routine; and 26, or 48 per cent, were poorly-adjusted. Of the dysplastics, four, or 33 per cent, were well-integrated, and eight, or 67 per cent, were poorly-integrated; four, or 33 per cent, were well-adjusted, and eight, or 67 per cent, were poorly-adjusted. Of the pyknics, 28, or 82 per cent, were well-integrated; and six, or 18 per cent, poorly-integrated; 24, or 71 per cent, were well-adjusted; and 10, or 29 per cent, were poorly-adjusted.

From these figures, it can be seen that the pyknics as a group were the best-integrated and reacted most favorably to hospitalization. However, the most pronounced discrepancy between the personality integration and the adjustment to hospitalization was observed also in the pyknic group. Therefore, a close correlation be-

tween the body type and the adjustment to the hospital routine does not necessarily exist. The dysplastic types were the most poorly-integrated and responded least satisfactorily to the hospital routine.

IV. Summary

The adjustment to hospitalization, the personality integration and the physical habitus were studied in 100 cases on the medical ward of a general hospital. It was found that 44 per cent were inadequately adjusted to the hospital regimen. Thirty-eight per cent had poorly-integrated personalities. An unfavorable reaction to hospitalization seemed to depend largely upon the previous personality integration, and to some extent upon the severity of the illness, the social and economic factors, and the habitus. Because of the relatively small number of cases, only tentative conclusions have been formulated.

Patients in General Hospital

Asthenics	54	Well-integrated	62	Well-adjusted	56
Dysplastics	12	Poorly-integrated	38	Poorly-adjusted	44
Pyknic	34				
	—	Total	100	Total	100
Total	100				

Poorly-Adjusted to Hospital Routine		*Poorly-Integrated*	
Asthenic	26	Asthenic	24
Dysplastic	8	Dysplastic	8
Pyknic	10	Pyknic	6
	44		38

Well-Adjusted to Hospital Routine		*Well-Integrated*	
Asthenic	28	Asthenic	30
Dysplastic	4	Dysplastic	4
Pyknic	24	Pyknic	28
	56		62

Poorly-Adjusted		*Well-Adjusted*	
Percentage of asthenics	48	Percentage of asthenics	52
Percentage of dysplastics	67	Percentage of dysplastics	33
Percentage of pyknics	42	Percentage of pyknics	58

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ALCOHOLICS ANONYMOUS

BY PERCY L. SMITH, M. D.

For many years, the treatment of alcoholism has been an increasing problem to the alcoholic, his friends, relatives, the clergy, social organizations and the medical profession. Much work has been done by religious organizations and temperance societies. We have all seen their methods of approach since our earliest recollections. These included pamphlets, dramas presenting the terrifying results of alcoholism, the signing of pledges, varying cures, all similar in their emotional appeal.

The family doctor has his problem with the alcoholic himself and his over-solicitous relatives. The psychiatrist shares this problem. Alcoholics are cared for in general hospitals, psychiatric clinics, private and mental hospitals. The majority of those treated become good patients, agreeable, cooperative in their treatment and contacts, after varying periods of hospitalization. They leave, with good intentions and promises, only to return in a week, a month, or a year, in their previous conditions or worse. Once more, they are built up to excellent physical resistance; they receive psychotherapy; they are reassured and, later, again sent out into the community. After short periods, their alcoholic habits are resumed; and they are returned to the hospital. A few seem to profit from their experiences and treatment.

Methods of approach and treatment are varied. These are, besides treatment for acute alcoholism, hydrotherapy, occupational therapy, long periods of hospitalization in various industries, individual psychotherapy and group therapy, also mental catharsis and psychoanalysis. A number of cases recover or improve, but the majority show very little, if any, change. Alcoholism, therefore, continues to increase and has become a great social menace. To combat this destruction of our social and economic order, science has joined society—in the Research Council on Problems of Alcohol.

For many years, individuals and groups have devised methods of approach to their problems that have been of great benefit to themselves and their friends. These methods have grown in favor at

various times and as we know have assisted many alcoholics. The Peabody group, the Oxford movement and other organizations have convinced us of their value.

During the last two or three years, a movement or approach which is gaining rapidly in favor has been the outgrowth of one man's attempt to help himself through religion. This method has gained momentum, through its success where others have failed. The idea is known as "Alcoholics Anonymous." In the spring of 1939, more than 100 men and women who had recovered from their hopeless state of alcoholism published a book under that title. In this book, they explain their principles and tell of their experiences and recoveries. The purpose of their organization is to show other alcoholics how they have recovered.

These men and women come from all walks of life and represent many political, economic, social and religious backgrounds. They are persons who normally would not be associated with each other; but there now exists among them a fellowship, a friendliness and an understanding which is indescribable.

Members of this group feel that the ex-alcoholic who has found the solution and who is properly armed with facts about himself, can generally win the entire confidence of another alcoholic in a few hours. Until such an understanding is reached, little or nothing can be accomplished.[1] They agree that an alcoholic can make a better approach to another alcoholic than can a person who is non-alcoholic.

They feel that rarely have they seen a person fail who has thoroughly followed their path. Those who do not recover are persons who cannot or will not give themselves completely to the simple program. Those who fail are men and women who are constitutionally incapable of being honest with themselves.[2]

Before looking further at this program, let us first have some understanding of what an alcoholic is and how he reacts. The question of what is an alcoholic has been under discussion for many years. This group believes that a true alcoholic is one who has passed from the social drinking stage where drinking can be controlled to that stage where all control of liquor consumption is lost.[3] Once he starts to drink, an alcoholic is without a defense against the first drink.[4]

One realizes, after studying alcoholics, that although they have developed physically and intellectually, emotionally they are immature. In other words, emotional development has not kept pace with physical and intellectual growth. The alcoholic who has reached the point of some introspection realizes this fact. Some can point out the period in their lives when the emotional lag began. They feel that with a consistant program of rehabilitation their emotions may approach the adult phase.

Many alcoholics are quiet, retiring and sensitive. Many realize that there is something lacking in their personal makeups and that alcohol lifts them temporarily over situations and problems. Thus they consume more and more alcohol to retain that feeling of confidence which is so necessary to meet life adequately.

Many are aware of escaping from something they cannot explain. In time, alcohol becomes their only escape; and in the end, it proves detrimental. In this escape, alcoholics refuse to face facts, finding the refusal to meet trying situations and responsibilities of life only too easy through alcoholic oblivion. Excusing themselves in this respect, they insist their problems are too large to overcome; and a fear of them develops. Further escape leads to prevarication, first to themselves, then to others. Freely they admit an untruth, to escape facing a fact; and they often use untruthfulness as an excuse for alcohol.

The majority admit that alcohol brings them to the lowest levels of their existance, with remorse and hopelessness through loss of position, friends and self-respect. Alcoholics believe they are sick and know that at one time they could take alcohol without difficulty. Now, one drink upsets them, causing loss of self-control. Gradually they accept the truth that alcohol is the result and not the cause of their conditions.

An alcoholic is approached in the following manner. A member of Alcoholics Anonymous relates his own story, what he was like, what happened and what he is like at present. The alcoholic must then make several decisions (a) decide that he is truly an alcoholic (b) decide what he wishes to do about the situation (c) determine if he desires what Alcoholics Anonymous has to offer (d) determine to make a great effort to follow this program. Then he is ready to take the steps. Those who believe they can control their drink-

ing and feel they do not need assistance from anyone are not considered true alcoholics. They are not contacted further, because they have not yet reached the point where an earnest effort for readjustment will be made.

The steps in the program of rehabilitation and recovery are listed in *Alcoholics Anonymous* substantially as follows:

(1) We admitted we were powerless over alcohol—that our lives had become unmanageable.

(2) Came to believe that a Power greater than ourselves could restore us to sanity.

(3) Made a decision to turn our will and our lives over to the care of God "as we understood Him."

(4) Made a searching and fearful moral inventory of ourselves.

(5) Admitted to God, to ourselves, and to another human being the exact nature of our wrongs.

(6) Were entirely ready to have God remove all these defects of character.

(7) Humbly asked Him to remove our shortcomings.

(8) Made a list of all persons we had harmed and became willing to make amends to them all.

(9) Made direct amends to such people wherever possible, except when to do so would injure them or others.

(10) Continued to take personal inventory and when we were wrong promptly admitted it.

(11) Sought through prayer and meditation to improve our conscious contact with God "as we understood Him," praying only for knowledge of His will for us and the power to carry that out.

(12) Having had a spiritual experience as the result of these steps, we tried to carry this message to alcoholics and to practice these principles in all our affairs.[5]

These 12 steps are discussed from time to time. The book is given to the new member to read and to study further the principles and personal experiences. As soon as an alcoholic understands himself—and not until then—he is expected to approach other alcoholics, thus becoming a disciple, seeking and helping others and himself.

Alcoholics Anonymous meet several times a week inviting husbands, wives and friends. This movement, now so extensive, holds

group meetings in New York, Philadelphia, Cleveland, Akron, Chicago, Washington, San Francisco, Orange, N. J., and many other cities throughout the country.

During early August, 1939, this program was first brought to the attention of the staff at the Rockland State Hospital by a member who called to visit a friend committed for an alcoholic psychosis. After reading *Alcoholics Anonymous* and attending a district group meeting, where the beneficial results of the program were observed, it was decided to give this new approach a trial.

Rockland State Hospital had, as have other State hospitals, alcoholics with several admissions and others admitted for the first time. Some were frequenters of transient hotels, mission houses and park benches. A few had records of arrests for vagrancy and begging. Some were admitted from private homes.

The program was first introduced to newly-admitted alcoholics who did not show marked symptoms of deterioration. The Alcoholics Anonymous member made contacts with two or three alcoholics who admitted uncontrolled drinking and realized the need to help themselves. Those approached agreed to the necessity of assistance and guidance in their attempt at readjustment.

This program was not presented to any alcoholic until he had been under observation for several weeks, until all examinations were completed and until hallucinatory and delusional episodes had disappeared. Several alcoholics thought they could control their drinking and did not desire help.

The first converts received an opportunity to contact other alcoholics after reaching an understanding of the principles. Later this group, consisting of 10 members, was allowed, under supervision, to attend district meetings held a short distance from the hospital on Sunday afternoons. Mingling with other alcoholics in similar circumstances, they were overcome by the companionship and good will of the group. Trips to these meetings continued every Sunday, though they were transferred later to New York City because of bad weather conditions.

Members of the hospital group met in a ward, later organizing their own meetings one night a week. Members were free to consult the psychiatrist and received various degrees of psychotherapy, depending on individual ability to understand problems.

As they gradually showed marked improvement, many members received positions in the hospital and were placed on the convalescent ward. After hospital residences of several months, when it was believed they were able to adjust in the community, they were discharged or paroled, returning to wives, husbands, brothers or sisters. Those without friends or financial aid received small amounts of money and letters to the relief authorities, asking for assistance. Attempts were made to form small groups in rooming houses located in suitable surroundings. Generally, in these groups, leadership was assumed by one individual, through the force of his personality and his ability to keep the others together.

The Sunday meetings continued with beneficial results and growing enthusiasm among members, who no longer considered themselves outcasts and were overjoyed by the society of friends. At these meetings, several members of the New York City group discussed the obstacles to readjustment and helped others to overcome their problems through short testimonials. The meetings usually ended with refreshments.

When alcoholics realize they have now found something that will help them they become highly enthusiastic about the 12 steps. They are grateful for the assistance and encouragement received from other alcoholics, for they know that now there is a road to recovery open to them. Formerly, each had floundered about alone. Careful introspection leads the alcoholics to sincere desire to amend past mistakes. Very seldom does one meet alcoholics who really like alcoholic beverages. When the steps have been completed there are marked changes seen in alcoholics. Their sincerity, friendliness and feelings of confidence are beyond description. Never before in their lives have they felt such power, such sense of well-being. Immediately, they begin seeking other alcoholics so that this new-found idea may help others also. All realize that in helping other alcoholics, they are helping themselves.

Many admit that at first they are reluctant to talk to physicians. This is because of fears and suspicions developed in previous bitter experiences with medical advisers. Their facial expressions and general bearings change gradually as they gain confidence and

trust in those who are assisting them. All agree that, through hospitalization and abstinence, their physical conditions improve greatly and their mental associations become much clearer.

The Alcoholics Anonymous program tries not only to help the alcoholic but also to instruct relatives and friends as to their parts in aiding him back along the road to recovery. Alcoholics Anonymous feel that this assistance is highly important to successful rehabilitation.

Alcoholics Anonymous was introduced to 111 alcoholics at Rockland State Hospital. These were admitted from August, 1939, to March 27, 1941. Later observations will give further results of this group, as it grows larger and shows longer periods of rehabilitation. All gave histories of chronic alcoholism for many years. The majority began drinking in their early 'teens or twenties. The period of excessive drinking varied from one to 12 years. Of the first 68 studied, 27 were unhappily married or separated; 15 were divorced; while 14 were happily married. Twelve were single. The occupations varied from professional men and business executives to unskilled laborers.

Of the 111 alcoholics five were former Alcoholics Anonymous members, while 106 were new to its teachings.

On March 27, 1941, there were:

Alcoholics adjusting well—without relapse	42		
Alcoholics adjusting well—one relapse	11		
Alcoholics adjusting well—two relapses	3—	56 or	50.5%
Continued alcoholic in community	21		
Continued alcoholic, returned to hospital	20—	41 or	36.9%
Still in hospital		14 or	12.6%
Total		111 or	100%

This shows a percentage of 50.5 adjusting in the community.

RECORD OF ADJUSTMENT IN COMMUNITY

Well adjusted without relapse:

	Months	Members
Out of the hospital	18	1
Out of the hospital	17	1
Out of the hospital	15	3
Out of the hospital	14	1

	Months	Members
Out of the hospital	11	2
Out of the hospital	10	5
Out of the hospital	8	2
Out of the hospital	6	7
Out of the hospital	5	1
Out of the hospital	4	2
Out of the hospital	3	3
Out of the hospital	2	6
Out of the hospital	1	4
Out of the hospital less than	1	4
		42
Well adjusted—one relapse:		
Out of the hospital	17	1
Out of the hospital	15	1
Out of the hospital	12	2
Out of the hospital	11	1
Out of the hospital	9	1
Out of the hospital	8	1
Out of the hospital	7	3
Out of the hospital	4	1
		11
Well adjusted—two relapses:		
Out of the hospital	19	1
Out of the hospital	11	1
Out of the hospital	10	1
		3
Continued alcoholic in the community:		
Out of the hospital	18	2
Out of the hospital	12	1
Out of the hospital	10	1
Out of the hospital	8	1
Out of the hospital	7	2
Out of the hospital	6	3
Out of the hospital	5	1
Out of the hospital	4	2
Out of the hospital	3	2
Out of the hospital	2	2
Out of the hospital	1	4
		21

The results obtained by this handling of the alcoholic problem show a marked improvement over earlier methods of appeal and treatment. It has assisted many back to health who would have continued to have repeated admissions to our sanatoria and hospitals. With the rapidly-developing interest in this appealing movement throughout the entire country, the future number of rehabilitated alcoholics should be far greater than the striking results obtained up to this time.

Rockland State Hospital
Orangeburg, N. Y.

REFERENCES

1. Alcoholics Anonymous. Work Publishing Co., New York, 1939, p. 28.
2. Ibid, p. 70.
3. Ibid, p. 31.
4. Ibid, p. 34.
5. Ibid, p. 71 and p. 72.

TUBERCULOSIS CONTROL AT ROCKLAND STATE HOSPITAL

BY W. ANDERSON THOMPSON, M. D.

The problem of tuberculosis in mental patients has always received considerable attention, a matter for which there are, of course, numerous reasons. However, for the most part, attention has consisted of more or less unsystematized diagnostic procedures. In the State institutions, this has been due principally to the difficulty in observing closely, and in examining physically, the large resident populations. Not only does the number of patients hamper adequate examination and care, but inability or failure to complain—due to mental deterioration or lack of interest in self-preservation—and dulling of reflexes, especially the cough reflex make it exceedingly difficult to make early accurate diagnosis. The purpose of this presentation is to indicate a reliable means for the control of tuberculosis in a mental hospital, in a relatively inexpensive and time-saving manner, which to most hospitals is of paramount importance.

During the past two years, all mental patients living in Rockland State Hospital, including all new admissions, have had examinations of their chests by fluoroscopy. The total number examined was 6,313 patients. Included in these figures, was every mental classification met with in the ordinary mental hospital. Some patients were infirm; others were restless, resistive, violent or uncooperative because of mental deterioration. The majority were, however, in good contact and cooperative. Many minor problems arose from time to time because of the disabilities or peculiar reactions of the patients; these were usually easily solved and caused but slight, temporary inconvenience and difficulty. These difficulties were surmounted on the whole, despite the strange surroundings, the necessary darkness, the patients' fears or peculiar notions regarding electricity or X-rays, together with the requirement that the examination be done in the upright position. Trouble diminished progressively with experience.

The fluoroscopic examinations were considered necessary, because from time to time active cases of tuberculosis were discovered in the hospital. Since, frequently, the tuberculous patient was uncomplaining, the pulmonary disease could make great progress

before its detection and could be a serious focus of infection. Often, an untidy, deteriorated patient handles his sputum; and it is rubbed upon furniture and clothing, where other patients may readily come into contact with it. It was to prevent such contagion, that a rapid survey by fluoroscopy was decided upon; moreover adequate treatment could be then instituted in active cases, and closer observation could be given to inactive cases which were potential sources of tuberculous infection.

The examinations were undertaken under the guidance of Dr. William J. Ryan, director of the local county sanatorium and hospital consultant for chest and lung diseases. The writer, together with several other members of the hospital staff, at first alternated fluoroscoping the patients with Dr. Ryan, who pointed out necessary details. After a number of sessions, the work went on without his aid; and finally the writer took over all the examinations. It seems desirable that one individual should do the work; because in this manner, experience is gained more quickly, and the results, therefore, are likely to be more accurate and uniform.

It has become customary to examine between 60 and 100 patients at one session. This number was arrived at, as it represents approximately an hour's work. This length of time is the maximum under which external factors do not hinder accurate and correct interpretation. Those factors are eye-strain, fatigue caused by the weight of the leaded protective garments, fouling of the atmosphere by numerous patients in a closed room and increasing heat and humidity from the same source. Because of the shuttered windows required for darkening the room used at Rockland State Hospital, it is difficult to provide adequate ventilation during the period required for the examinations.

The physical setup of the X-ray department includes three rooms, a central one housing the fluoroscopic outfit, and a room on either side of it. Each of the latter is connected to the central, X-ray room by a short hall. The patients enter a side room, which is fairly well lighted, and pass through the hall connecting it to the X-ray room. The hall and X-ray room are darkened. An attendant guides a line of patients to the fluoroscopic machine. The technician then places a patient behind the screen. On completion

of the examination, a nurse or attendant takes the patient to the door opening into the opposite side room. The latter is lighted; and it is, therefore, customary for from eight to 10 patients to gather at the inner door before being allowed to make an exit; thus a minimum of light is permitted in the fluoroscopic room. Despite the fact that the X-ray room is quite dark, the arrangement works out very satisfactorily; and on the whole, there is no confusion among the patients while in the darkened room.

At one side of the machine, sits a stenographer who works under a red- or green-shaded light, which is sufficient for the recording of the dictated report of the findings. It can be seen, therefore, that there are usually one or two attendants or nurses, the X-ray technician, the stenographer and the examiner in the room with the patients. Another attendant is in charge of the patients before their admission to the X-ray room and another receives them after their exit.

The equipment used is a General Electric KX6 fluoroscopic unit with shock-proof tube. The screen is of the ordinary type and size, with shutters that work horizontally and vertically, thus permitting concentration of rays on localized areas. Usually an amperage of 5 ma. and a voltage of about 80 K. V. were used for the work. Although there are many varieties and shapes of chests, these electrical potentials are suitable for all patients and have been kept constant. All views are made with the patient in standing position. For protection from X-rays the examiner wears a leaded rubber apron which extends from the chin to below the knees. Leaded rubber gloves are also worn. This seems to give adequate protection. On one occasion, a rash developed on the writer's arms but since it disappeared despite continued use of the fluoroscope, a causal relationship was ruled out. No other apparent harmful effects have developed. As the other assistants are not directly in front of the rays, they wear no protective garments.

When the work was first commenced, the chests of male patients were bared, and the women were sent for examination without such garments as corsets, underclothing or jackets. This procedure was soon found too time-consuming and, as experience was gained, no clothing was removed from the patients with the exception of the men's coats and vests. Shadows due to external factors are gen-

erally easily differentiated from those within the chest. The fact that the clothing is not removed permits much more rapid examination of a group, or allows examination of a larger group in the same amount of time, and this without sacrifice of accuracy.

When the patient is placed behind the screen, it is opened widely, so that a view of the entire chest may be obtained. Attention is given next to the upper poles of the lungs; then, as the screen is moved downward, the lung portions behind the ribs appear, so that what at first may be obscured, becomes exposed to view. Alternate movement of the screen up and down is therefore recommended. Small foci behind the ribs are often visualized in this manner. The screen may then be closed horizontally, concentrating on the apices and upper intercostal spaces; then closed vertically, focusing on the right and left medial portions. By these moves, the areas most frequently affected by tubercle bacilli are given special attention; if desired, concentration of rays may be made on any other local area. This is all done in the space of a few seconds in the ordinary case. In patients that have lesions, more time is required for details. The average number who can be examined in an hour varies from about 50 to 100, depending on cooperation of the patients and the amount of pathology encountered.

Not only have lung conditions been noted, but also cardiac and aortic states, mediastinal topography and rib pathology, such as cervical ribs, were recorded. A tabulation of these is included in the present report. As noted, the findings are dictated directly to a stenographer who later transcribes them on cards to be placed in an index file. From time to time—the occasions have diminished as experience has been gained—a flat plate of a particular chest has been requested, to check on the diagnosis or give clearer details, or for a permanent record of any suspected abnormality. Early in the work, approximately 10 per cent of those fluoroscoped were photographed; this quickly fell to 3 or 4 per cent. In addition to such X-ray plates, and as a gage of the accuracy of fluoroscopy, random cases to the number of 400 who had been previously fluoroscoped were X-rayed. These plates disclosed but one error in the fluoroscopy; and this is considered practically negligible.

The ages of the patients examined varied from 15 to 102 years. Approximately 1,000 of the patients were from the disturbed serv-

ices. Some had sedatives before being sent for examination; and a considerable number required restraint during fluoroscopy. Some patients with delusions were suspicious of the procedure; and their fears at times caused difficulties, but the number of these cases was small. About 800 of those examined were from the infirmary services. However, the time required for fluoroscopic examination is so short that only a few were unable to maintain the necessary standing position. Experience at this hospital indicates that examination in the necessarily darkened room is quite satisfactory. The darkness appears to have a quieting effect on disturbed patients, rather than otherwise. In the dark, the mysterious-looking, somewhat awesome apparatus is not apparent to the patients. It was found that patients were much less disturbed by fluoroscopic examinations than by the taking of roentgenograms.

A number of unusual configurations of chests were observed. The very obese patients were the most difficult to examine, because of the haziness of the pictures. Concentration of the rays, however, by closing the screen shutters usually permitted a satisfactory interpretation. Patients with severe scoliosis also caused some difficulties; but with experience, pathology, if present, could be made out.

The shadows caused by articles of dress such as suspenders, corsets, buttons, and the leaded silk of women's dresses, were readily distinguished—by movement of the screen up and down—from shadows due to tissue pathology. Sometimes, to rule out an external shadow, movement of the patient's clothing in the region of the shadow was necessary.

It may now be asked, what the significant findings of the fluoroscopic examinations were. At Rockland, 6,313 patients were examined; and of these, 580, or 9.1 per cent, showed pulmonary pathology of a greater or lesser degree, ranging from calcified glands of the hilum to bilateral advanced active tuberculosis. This figure compares with 13.7 per cent in the Ontario group as reported last year.* Before proceeding with a description, the writer desires to point out other incidental findings. Thus, there were 387 cases of cardiac pathology, as indicated by enlargement of the right or left side of the heart or both. There were 177 cases of aortic pathol-

*Paper read at the 1940 meeting of the American Psychiatric Association, Cincinnati, Ohio.

ogy, varying from fusiform dilatation to large aneurysms. Spinal pathology, such as scoliosis and lordosis, was recorded, and cervical ribs were found in 25 cases. Pulmonary cysts, malignancy of the lungs and mediastinal tumors were also noted. These findings were incidental to the study but were important and were recorded on the patients' charts.

The 580 cases in which evidence of tuberculous conditions were found are shown in tabular form. It will be noted that the degree of pulmonary involvement is not indicated, because in this report, the chief interest is in pointing out whether the cases are active or inactive tuberculosis. The active cases have been placed on the tuberculosis service where they receive appropriate treatment; the inactive cases will be kept under observation for a prolonged period.

	No. of cases
Inactive or healed tuberculosis:	
Right lung	128
Left lung	73
Bilateral	61
Total	262
Calcareous hilus glands:	
Right hilum	56
Left hilum	106
Bilateral	40
Total	202
Ghon tubercles (childhood tuberculosis):	
Right lung	86
Left lung	38
Total	124
Total inactive cases	588
Active tuberculosis:	
Right lung	9
Left lung	6
Bilateral	16
Total	31
Total active cases	31
Grand total	619

The apparent excess of 39 inactive cases is due to the fact that some patients had evidence of both childhood (Ghon tubercles) and adult tuberculosis, and were included under both forms.

Thus 588, or 95 per cent, of those with lesions were diagnosed as having healed or inactive tuberculosis. Of the total number of patients fluoroscoped they form 9.3 per cent. In the Ontario report, 12.4 per cent of those X-rayed were considered as having inactive or questionably active tuberculosis. Thirty-one, or 5 per cent, of those having lesions had an active form of tuberculosis requiring immediate treatment; they made up 0.49 per cent of the total ex-

amined. In the Ontario examination, 1.3 per cent of the patients had active tuberculosis. Several reasons could be advanced to explain the difference in these figures. Thus, the Ontario report indicates that 1.7 per cent of the hospitalized patients were under treatment at the time of the survey; at Rockland, 3.3 per cent were receiving or had received treatment. In addition, it is well known that Hebrews are comparatively resistant to tuberculosis. The population of Rockland State Hospital is in very large part composed of Jewish patients.

Because the patients are in a mental hospital, the writer has separated the 580 cases according to the diagnosis of mental illness. These statistics again have nothing to do with the control of tuberculosis, but are interesting in that they tend to support claims that the incidence of tuberculosis is high among dementia præcox patients.

Diagnosis of mental illness	Active cases	Inactive cases
Dementia præcox:		
Simple	1	8
Hebephrenic	2	59
Catatonic	6	30
Paranoid	10	160
Other	0	4
Total	19	261
Manic-depressive psychosis:		
Manic	0	7
Depressed	0	13
Mixed	0	5
Total	0	25
Psychosis with cerebral arteriosclerosis	1	70
Involutional psychosis	1	53
Psychosis due to alcohol	2	24
Psychosis due to syphilitic meningo-encephalitis	2	38
Psychosis with mental deficiency	0	16
Psychosis with epilepsy	2	10
Senile psychosis	3	15
Miscellaneous	1	37
Grand total	31	549

The ratio to the number of patients in each mental classification in the hospital is not indicated.

The plan at Rockland is to fluoroscope all new admissions shortly after their entrance to the hospital. Those previously examined, who have pulmonary pathology, will receive periodic examinations either by fluoroscopy or X-ray plates at stated times.

Conclusion

Fluoroscopy is adequate for the discovery of pulmonary tuberculosis in the patients of a mental institution. The small error at Rockland—which was noted previously—might as easily have occurred in the taking of X-ray plates, since there are several factors that may hinder the taking of good films. Among these, are the necessity of correct electrical potentials for varying sizes of chests, lack of cooperation on the part of the patient and faulty developing. A patient must hold his breath for a good X-ray plate and stand motionless for a sufficient time; less cooperation of the patient is required in fluoroscopy.

Fluoroscopy is much less expensive than the taking of films. A 14 by 17 X-ray plate costs the hospital at least 52 cents. For films alone, in such a survey as has been made at Rockland State Hospital, the cost would be approximately $3,300. This does not take into consideration the cost of the developing and fixing fluids, or the large amount of time that would be required of the technician. The cost of fluoroscopy is practically nil. If films were required in 10 per cent of the fluoroscoped cases—and the writer believes this would be many more than necessary—the cost would be reduced to $330 in a group as large as the one at Rockland. In this series, about 4 per cent of those examined were X-rayed for one reason or another.

Summary

Fluoroscopy for the control of tuberculosis of the pulmonary type is highly useful in mental institutions, because it is satisfactory from the standpoint of accuracy and much less expensive than ordinary roentgenography.

Rockland State Hospital
Orangeburg, N. Y.

NOTES ON THE UNUSUAL COURSE IN CERTAIN CASES OF MIGRAINE

BY WILLIAM MAYER, M. D.

Although there is a great accumulation of literature regarding migraine in relation to etiology, influence of heredity, symptomatology and varying forms of attacks, and although there is much concern with therapy, little has been written regarding the eventual resolution of the individual case. Most textbooks agree that attacks often continue for 20 to 30 years, during which their character may change. A great variety of interval symptoms may exist. It is usually stated that both violence and frequency of attacks decrease during the fourth and fifth decade, with a complete termination at some time during the involutional period in both sexes. However, it has also been recognized that some patients continue to have more or less regular attacks through the fifth and sixth decades.

In personal experience with more than 100 patients who were suffering from the various forms of migraine over a period of many years, two of them for over 20, the writer observed that in seven persons the attacks, instead of decreasing, have gradually merged into a chronic cephalalgia, differing in character from the earlier attacks, and totally unresponsive to any form of therapy. Two of these seven cases are here reported in detail.

Case 1. Th. L. was an army officer, who came from a "highly nervous" family. His mother suffered from a typical migraine, as did his maternal grandmother. Throughout his life, the patient was highly gifted intellectually and rather unstable emotionally, with mild mood swings. His marriage was fairly happy. He had one daughter. At the age of 18, he experienced his first migraine attack. These attacks continued until he was 51, with more or less the same prodromal symptoms, feelings of fatigue, dizziness and unusual irritability. The attack would follow and last the greater part of a day. Usually, he had well-defined, left-sided headaches, with eye and stomach symptoms; but occasionally he suffered from transient paresthesias. In the intervals—the attacks came every three or four weeks—he was often tired or somewhat depressed, or had a tendency toward neuralgia and rarely to paroxysmal

tachycardia. Alcohol, excitement, sexual intercourse, or staying for long periods of time in a room with bad air would precipitate migrainous attacks.

The entire character of the attacks changed when the man approached his 50's. The headache became almost a continuous pain and no longer recurred in isolated attacks. Throughout seven years, until the patient was 57, the writer's observations indicated that the sufferer was practically in a state of hemicrania permanens. This headache was, at times one-sided, at other times two-sided. It seldom reached the intensity it had attained during isolated attacks of migraine; but it ceased infrequently and the patient suffered intensely. There were never indications of a general or cerebral arteriosclerosis, and he showed no abnormal neurological signs. The fundi were normal on both sides. No relief was obtained with any form of therapy, although every reputable therapeutic procedure was tried.

Case 2. O. P. is a surgeon, aged 56. He has been a physician for the past 30 years. His mother once suffered from a reactive depressive state; and she had migraine attacks throughout her life. His childhood was uneventful. He was never seriously ill. He was of pyknic physique, with some tendency to mild depressions which never terminated in a deep depression. When he was 20, he had his first migraine attack with right-sided headaches and vagus symptoms. He had these attacks for about 29 years with no interval symptoms and was treated by several doctors with luminal and gynergen. When he approached the fifth decade, the character of the disease and of the migraine attacks changed. They were no longer circumscribed, nor did they occur at monthly intervals. At this time he suffered from a continuous headache. During the writer's observation over a period of seven years, the patient was seen to be often angry and irritable. The headache was not excessive but annoying. Neurological examination was repeated frequently; but there were never any signs of an organic lesion or of arteriosclerosis. Blood pressure was within normal limits, (two years ago 120/75). The eyegrounds were normal. No relief was obtained by this patient from any medication or regime.

The other five patients in this series have case histories almost identical with the two cases reported and showing essentially the same picture.

Comment

It is impossible to state the anatomical, or better, the pathophysiological background of these permanent headaches which replaced the episodic attacks of earlier life. If we accept the theory that migraine represents a neurosis characterized by transient vasoconstriction of certain cerebral vessels—and this, of all theories, seems most satisfactorily to explain the transitory hemiparesis, aphasias, hemianopias, the paresthesias and the frequent association with angina pectoris—we might postulate that the repetition of hundreds of migraine attacks in certain individuals eventually results in some organic change occurring in the vessels or surrounding tissue in a hitherto undescribed manner. Such a theory is tenable but difficult to prove. Why such a small percentage of total cases terminates in this fashion is hard to understand.

Summary

Two of seven cases of migraine out of a series slightly in excess of 100 are reported in detail, because the episodic attacks in these seven cases have been replaced in the fourth or fifth decade by a continuous, low grade cephalalgia. The pathophysiological origin is not clear; but it is possible that a functional, long-lasting vasoconstrictor neurosis slowly effects organic changes in the vessels or in the adjacent brain tissue.

The Long Island Home
Amityville, L. I.

PSYCHOSES IN ADULT MENTAL DEFECTIVES

BY HERBERT H. HERSKOVITZ, M. D., AND MARVIN R. PLESSET, M. D.

Psychoses occurring in individuals of less than normal intelligence have received little attention in recent literature. Humphreys,[1] reviewing the proceedings of the American Association on Mental Deficiency from 1876 until 1935, deplored the fact that papers on investigative psychiatry played a relatively minor rôle in the presentations. He did, however, recognize an increasing interest in this field. Milici[2] described cases of schizophrenia engrafted upon mental deficiency and showed an essential similarity of the episodic, the intermediary, and the deteriorating cases. He thereby disagreed with May[3] who would classify the episodic type as "Psychosis with Mental Deficiency." Duncan, Penrose and Turnbull[4] made a survey of the population of the Severalls Mental Hospital (England) and found a rather high incidence of mental deficiency associated with the psychoses. Duncan,[5] in a separate report, examined the manic-depressive patients in more detail. Slater[6] disagreed with their figures and found fault with the authors' methods of evaluating mental deficiency. This question will be discussed later. Vanuxem[7] emphasized the need for careful intelligence determination in psychotic defectives. Karlan[8] reported 14 cases of recurrent psychoses occurring in defective delinquents while in prison, and agreed that their reaction to confinement is similar to that of the psychopathic personalities, of which he reported 67 cases.

Textbooks of psychiatry and mental deficiency discuss the subject briefly, usually following the method of classification of the American Psychiatric Association.[9] Under the group, "Psychosis with Mental Deficiency," the committee on nomenclature and statistics feels, should be classified those mental defectives whose symptoms are ". . . usually of an acute transitory nature and most commonly are episodes of excitement with depression, paranoid trends, or hallucinatory attacks." They further suggest that when the defective suffers with manic-depressive attacks or dementia præcox or an organic psychosis, he should be classified under such respective headings. Tredgold[10] states, "Defectives show

fits of irritability, moroseness, or tantrums, often accompanied by fits of violence . . . although such attacks can hardly be termed insanity they are only too often shadows of the coming events which will almost inevitably result in insanity." Strecker and Ebaugh[11] write, "Psychotic episodes (in defectives) are usually incomplete and poorly defined. Periods of confusion with hallucinosis or outbreaks of uncontrollable and unrelated motor activity are fair examples . . ." Bleuler and Brill[12] comment, "Whether the schizophrenia sometimes also observed is only accidental, having been engrafted on oligophrenia, is not yet known."

The purpose of the present study was to attempt: (1) more definitely to describe what behavior in defectives should be considered psychotic; (2) more clearly to classify the types of psychotic reactions found; (3) to determine whether there is any relation between the type of psychosis developed and the innate intellectual capacity. To this end the case records of adult patients at the Norristown (Pennsylvania) State Hospital, whose I. Q. was below 80, were reviewed. Mental defectives with epilepsy, alcoholism, and hereditary or other neurological diseases were not included in this study, as it was felt that these conditions were not within the scope of the subject. Cases which on psychometric examination showed evidence of definite mental impairment due to the concomitant psychotic reaction were not considered, unless contributory data proved that a patient was really defective and that his degree of intelligence could be reasonably judged.

While admitting that statistical classification is in itself of little value, it must be recognized that if further progress in the study of psychoses in the feebleminded is to be accomplished, there must be proper regard for terms and understanding of diagnoses. With psychoses in general, it is frequently difficult to determine just when a patient may be described as psychotic. In the mental defective, there is an added difficulty because of his "original" inferior mode of adjusting. The defective's need for special attention, his exhibition of tantrums and certain other behavior characteristics are normal for him. For example: A defective who cannot give his address or the date, who requires aid in dressing, bathing and at the toilet, who is prone to take things which strike his fancy and is apt to become angered if his wishes are not

granted, is not necessarily psychotic; while a college youth developing these symptoms would, of course, be so classified. It is obvious, therefore, that before a diagnosis of psychosis with mental deficiency can be made, the individual must show deviations from his usual (normal) mode of feeling, thinking and behaving. The following cases illustrate such reactions:

Case 1. Y. F., male, aged 17, I. Q. 42.* The patient had always been quiet, docile, friendly, and well-behaved. He never attended school but spent his time playing about the neighborhood. A few months before admission, he became friendly with some older boys who induced him to perform fellatio. The day of the onset of his illness, he visited a carnival where he started to steal a ride on the merry-go-round but immediately jumped off and ran home. There he mumbled, cried, shouted, was very fearful and masturbated almost continuously. He ran wildly about the house, complained of various aches and pains and refused to eat. In this state, he was admitted to the hospital and two days later was entirely quiet. He was taken out by his family, but the next day he had to be returned because of a recurrence of his symptoms. After one month he made an excellent hospital adjustment.

Case 2. D. G., male, aged 39, I. Q. 48. The patient was always a backward, shy, generous, submissive, easy-going person. He was employed in a paper factory, sorting rags. In December, 1938, his fellow employees, who usually teased him, played a rather severe joke on him. They made a rag doll, put it among the patient's rags and then pretended they had found a dead baby, accusing him of having killed it. D. G. became extremely fearful, he imagined detectives were after him, he felt he had killed a baby and was going to be executed, he threatened to kill himself, insisted that the neighbors were spying on him and that a machine was being used which could penetrate the wall and see what he was doing. There were short periods of improvement, but he gradually became worse and was admitted six weeks later. In the hospital, he rapidly lost his ideas and within a month was quite well.

Case 3. H. C., male, aged 30, I. Q. 33. Until the time of the present illness this patient had been timid, easily frightened, excitable and oversensitive. He was well-liked by the neighbors and seldom gave difficulty, except through occasional stubbornness. Three months before commitment, he began to believe that people were "after him." He was hyperactive,

*The psychometric examinations were performed by E. Louise Hamilton, Ph.D. The 1916 revision of the Stanford-Binet was used and calculations were made on a 15-year basis. When the basal age was below three years, the Kuhlmann revision (1922) of the Binet-Simon scale was used.

continually dressed and undressed, went up and down the stairs and in and out of the house. Two days before admission, H. C. suddenly became violent. He fought, bit, and attempted to choke his father. An uncle who came to the father's assistance suffered a severe bite on the arm before the patient was finally restrained. When admitted, H. C. denied having attacked his father. He complained that a fellow, about whom he knew nothing more than that his name was Joe, dropped ether on him every night and made him "dopey." For reasons unknown to him, he believed people were "after him." Except for a few days after admission, he has been quiet, has gradually forgotten his ideas and has made an excellent hospital adjustment except for being irritable occasionally.

Case 4. J. D., female, aged 17, I. Q. 14. As a child this girl had tantrums at times but for the most part was quiet and well-behaved. She spent most of her day looking at picture books and following her mother about the house. She had to be committed because—for a short while before admission—she had had frequent "outbursts of screaming and had to be restrained to her bed." When admitted, her screaming could be heard for some distance from the building. She was resistive, ran about, striking and biting people at random. Within six weeks, she was quiet and docile, but required a large amount of nursing care because she had never been trained. At the end of three months, she was removed from the hospital and to date, three years later, has not returned.

It should be noted that in each of these cases the patient, although not a well-adjusted, well-integrated psychobiologic unit, was not considered psychotic until a definite change in his manner of feeling, thinking and behaving had occurred; and further, that this change was toward a more primitive and a less socially-acceptable direction. Among the cases just described, are illustrated certain rage and fear reactions. The attacks may occur infrequently or only once. It would seem, therefore, that a proper designation for such types would be "Mental Deficiency with Psychotic Episodes" or "Mental Deficiency with Rage (or Other) Reactions."

Another type of reaction is that in which there are prolonged states of hyperactivity, aggressiveness, apprehensiveness or hallucinosis, with, as a rule, gradual deterioration of habits, so that the patient needs progressively more supervision and nursing care. These patients become uninterested, careless, and slovenly, leading a vegetative existence. To illustrate:

Case 5. J. P., male, aged 51, I. Q. 38. The patient, a laborer, was self-supporting until 1930, when he had to be supported by public funds. He lived in a hovel with his wife, who also is psychotic. He was admitted after four serious suicidal attempts within a few days. At first he was assaultive, fearful, depressed and suicidal. He said that his wife had been killed several years ago and that the woman with whom he lived was not his wife. Much of the time he mumbled incoherently. Within a month these symptoms were replaced by apathy, and he denied his previous stories. He said that he had been discouraged because his wife nagged him constantly, refused to let him go out to look for work because she said she was sick and wanted him to be with her. At times he felt as if this kind of life were not worth living. He was paroled but was returned soon after his release, because he was reported to be roaming the streets with a gun, threatening to "shoot up the community." This he denied. It is now a year since J. P. was returned. He has periods wherein he will take to his bed for a few days, will refuse to speak, and will eat little. His general demeanor is one of depression. For the most part, he is noisy, sullen and shouts through the window, explaining this by saying that he is talking to someone.

Case 6. M. V., female, aged 53, I. Q. 14. At the age of five this patient had been sent to a school for the feebleminded. She was housed in a custodial building where, for years she had caused no difficulty. Fifteen years before hospitalization, she developed periodic outbursts of violent temper. This condition grew steadily worse, and for five years before admission she was more or less constantly in a disturbed state, during which she kicked, bit and threw anything she could reach. She had to be camisoled practically every night. Since admission, she has not been so disturbed, but she is destructive of clothing, engages in frequent altercations with other patients, and is progressively deteriorating.

Case 7. J. K., male, aged 20, I. Q. Low Grade Imbecile (impossible to make rating because of uncooperativeness). His parents say this patient was an affectionate and obedient child whose movements were awkward and slow. He was cheerful, generous and rarely self-assertive. At the age of 11, he was sent to a state school for the feebleminded but was removed against advice a few months later. After leaving the school, he was stubborn, screamed a great deal and was assaultive. At the age of 17, he became unmanageable and his parents sent him to a mental hospital but soon removed him again. Since then he has been "a raving maniac." Whenever his mother went near him, he struck her. His abnormal behavior increased and a year before his admission, it had became so bad that he had to be

kept in his room with every breakable object removed. Occasionally, he had quiet periods lasting about 15 minutes. During the six months before admission, he threatened to kill his family and threw whatever he could get at them. One night, his mother awakened and found J. K. standing over her with a hatchet. For a few days after admission, he was restless and noisy. After this he became quiet and sat in one place oblivious to ward events. He must be aided in dressing, bathing and going to the toilet, although at one time he was able to look after himself. He is gradually deteriorating.

Tredgold[10] writes of this type of dementia and compares it with natural failure in the nondefective aged. In the defective, the dementia may occur at any age but most often is found in the fourth decade; that is, a form of "senile" dementia sets in earlier in the defective. This is particularly true of those defectives who have previously been psychotic. Whether this deterioration is due to poor neuronic vitality or to a metabolic or vascular deficiency, the present writers are not prepared to say. It is possible that it is due to a generalized abiotrophy. The designation, "Psychosis with Mental Deficiency," might be reserved for this type of reaction.

A psychosis due to the effects of degenerative processes occurring during the normal senium also occurs in the feebleminded and should be diagnosed as such rather than as "Psychosis with Mental Deficiency." The following cases illustrate such deterioration:

Case 8. J. P., male, aged 64, I. Q. 26. The patient had never gone to school. He was always happy and submissive and spent much time going to church or watching boats go up and down the river. He was known and liked by everyone in the community. At the age of 56, eight years before admission, he began to be very unclean and untidy, to make peculiar motions with his hands and to grimace. He wandered aimlessly about and would get lost. When admitted, he needed constant supervision and nursing care. He was incontinent and drooled saliva, and his speech was unintelligible. He died three months after admission. Autopsy revealed parenchymatous degeneration of the myocardium with secondary pulmonary edema. The brain revealed thickening of the pia-arachnoid, hypoplasia of the arteries of the Circle of Willis and atherosclerosis of both internal carotid arteries, but no focal brain lesion.

Case 9. L. P., female, aged 67, I. Q. 41. This patient always had led a protected, supervised life on her family's farm. She had attended school for three years but had quit because "she couldn't learn anything." Her

time was spent doing small, simple chores about the house for her mother; and her family took pains to humor her, as she was apt to be stubborn, discontented and angry. She craved affection and attention. Two years before admission (age 65 years), she began to show mental symptoms, complaining that she had not enough money to live on. Her needs were always supplied. When money was given to her, she would hide it in bureau drawers. Members of the household were annoyed by her endless questions. She would arise during the night to argue with her family. Later she became very fearful and insisted on locking all the doors and windows. If left alone for a moment, she would run frantically through the house screaming for some member of the family. She frequently became assaultive. After admission, she seemed depressed, was inclined to be assaultive and generally disagreeable. Gradually she deteriorated and at present (age 70) requires constant nursing care, aid in dressing, bathing and going to the toilet, and her conversation is unintelligible.

Many adult feebleminded, who are not psychotic, but who for certain reasons are no longer able to be cared for in the community are admitted to mental hospitals. State schools for the feebleminded do not, as a rule, accept adult defectives. Chief among the reasons for their commitment is some type of nonpsychotic asocial behavior, or the death of a parent who had always supplied the patient with his needs and was able to "manage" him. Frequently such patients are incorrectly diagnosed as "With Psychosis." To illustrate:

Case 10. H. B., male, aged 39, I. Q. 44. He always had been argumentative and stubborn, had required much direction and frequently had tantrums. His parents looked after his needs, helped him to dress, reminded him of meal times and always "kept their eye on him." After the death of the parents, his sisters and brothers did not feel they could care for him. He wandered about the streets, took long walks and appeared dirty and neglected. His relatives worried because they feared he would get into trouble and, therefore, had him committed.

Case 11. E. G., male, aged 45, I. Q. 30. This patient was committed by his sister with whom he had lived following the death of his parents. His presence in her home was resented, and she feared he would harm her female children because he exposed himself and masturbated in public. In the hospital, there has been no trouble in his management; he has parole of the grounds and abuses none of the privileges granted him.

Case 12. M. B., female, aged 55, I. Q. 22. As a child, M. B. was described as docile, quiet and manageable. She helped with small chores about the house and occupied much of her time cutting carpet rags. When something displeased her, she would scream. She was rarely left alone by her mother. After her mother's death, 10 years ago, M. B.'s screaming periods became almost continuous. She went to live with a sister, and it was her habit to go to the cellar and "have a yelling spell." Sometimes she would make a noise by striking a stick on a table. At times, she would put a chair under the door-knob so that people could not get in to hurt her. She was taken to the county home, remained there three months, and then had to be transferred to a mental hospital because she disturbed the other inmates with her shouting. Since admission, she has had no such screaming periods, mainly because the attention she received in the institution compared favorably with that she received from her mother.

Case 13. H. S., male, aged 39, I. Q. 39. Previous to admission, this patient had spent much of his life in institutions. Several months before hospitalization, he had been taken home, where he did not adjust well. He was very unhappy and more moody and irritable than in the institutions. He became seclusive and thought the children in the household were "against him." He became rough with his little nieces and nephews when they would not play as he wanted to. If his wishes were not granted, he would have violent tantrums. In the hospital, he has made an excellent adjustment, and there has been no trouble in his management.

Case 14. A. G., female, aged 23, I. Q. 20. A. G. was always excitable, fearful, frequently stubborn and given to tantrums; she was never able to play with other children. In July, 1938, her menses ceased; but she refused medical examination, "hollering, screaming and carrying on in protest." One month before admission, she could no longer be handled at home because of her crying, screaming and resistiveness. Three weeks after admission, she gave birth to a child, and since becoming accustomed to the hospital routine, has been content and happy.

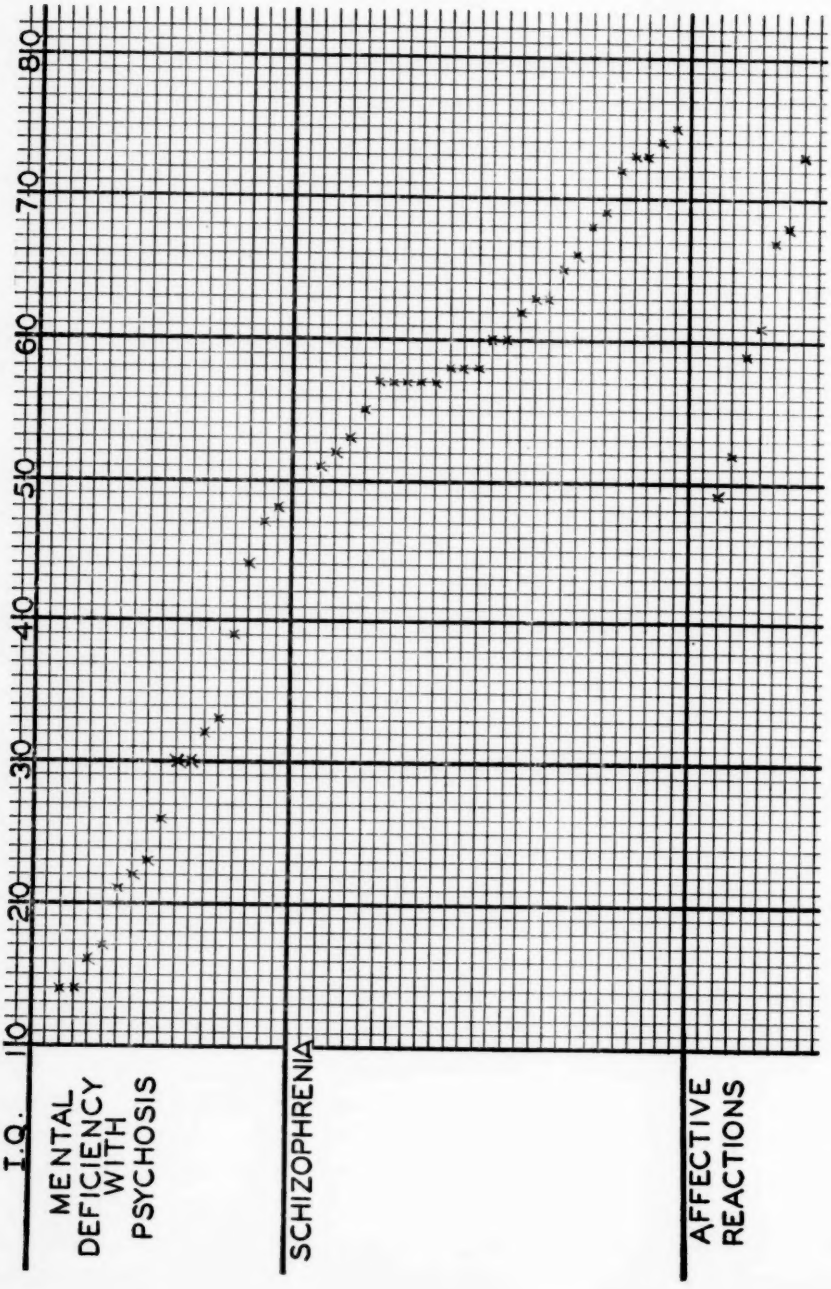
The writers do not believe that any of the cases in the foregoing group were psychotic, because there was no regression toward a lower level of adaptation. In case 10, H. B., appeared more slovenly and wandered about the neighborhood because the necessary close supervision was no longer exercised. In case 11, E. G., exposed himself and openly masturbated and yet is not considered psychotic as his exposure was probably a failure to button his trousers, and his choice of a place to masturbate was due to a judg-

ment always defective. M. B., case 12, followed a lifelong pattern of reaction to uncomfortable conditions; in case 13, H. S., is not psychotic—his tantrums were the only method at his command with which to denote dissatisfaction and were quite consistent with the mode of reaction of a five-year-old. A. G., case 14, could not understand the purpose of the attempted pelvic examinations, and her reactions to them are considered appropriate for one of her intelligence.

It is well recognized that schizophrenia and manic-depressive psychoses occur in the mentally deficient. The general reactions are much the same as in persons of normal intelligence. The prepsychotic personality may be typically schizoid or cyclothymic, but it is often strongly colored by the lack of normal intelligence and a general lack of personality integration. The schizophrenic type of psychosis is much more frequently found than the manic-depressive type. A study of the factors which precipitate psychoses reveals that the feebleminded are often affected by untoward external factors and events, to which persons with normal intelligence would not ordinarily succumb. The relatives of feebleminded patients are more frequently able to relate specific psychologically traumatic experiences, such as loss of a position, disappointment in love, death of a parent, or a partially disabling injury. A second frequently-seen factor is the ostracizing of the defective by siblings or friends because he is recognized as inferior and is unable to compete with them. Thus are engendered feelings of inadequacy which are more real than imagined; and a tendency is developed toward various defensive and compensatory personality traits, such as seclusiveness, jealousy, stubbornness, boastfulness, and attempts to rule by force or to gain attention through invalidism. Parents of such patients frequently prepare the soil for a later psychosis either by overprotecting or rejecting the child because of his deficiency or by attempting to deny this deficiency by exhorting the child to accomplish achievements of which he is not capable, and then comparing him unfavorably with others. Because of his inability to make a satisfactory social and economic adjustment, he may more readily find refuge in fantasy life or unwholesome ruminations—these being the real shadows before the coming event.

In the cases studied here, there was found a remarkable difference in the intelligence quotient between those diagnosed as "Psychosis with Mental Deficiency" and those as "functional" psychosis. In not one case of the former, was the I. Q. above 50, and in only one case of the latter was it below 50 (Chart 1). This is not meant to infer that 50 is an exact dividing line, a fixed figure, below and above which only certain phenomena occur. This matter of difference in I. Q. does, however, indicate a trend which is worthy of note. It would appear that a certain degree of intelligence is necessary before such mental diseases as schizophrenia or manic-depression occur. It might be argued that the psychotic processes are the same in all individuals, regardless of intelligence, and that the differences in the clinical pictures are due to differences in powers of expression. It is quite true that the mental defective tends to express himself in extremes, to give exaggerated responses to ordinary stimuli because—through lack of intelligence—he is unable to exercise selective control of his emotions. Perhaps it is true that a psychosis in a mental defective is a crude representation of a more complex expression. However, the writers feel that the basic psychopathology is different in this regard: That patients with low intelligence (I. Q. below 50) do not appreciate the factors (taboos, restrictions, training in habit and character formation) which in persons of higher intelligence cause mental conflicts. Further, those in the lower brackets are deficient in associative (intellectual) ability, because of lack of normal cerebral architecture; and, therefore, they cannot symbolize to a high enough degree to develop "symbolic" psychoses.

The factors involved in the production of psychic conflicts are aptly described by Noyes.[13] ". . . the desires of the individual, the recognition he craves and the gratification of the instinctive drives and impulses with which he is endowed are frequently not in harmony with the esthetic standards, welfare and demands of the large social group of which he is a member. Our racially inherited wishes and feelings are frequently not tolerable to our socially conditioned wishes and feelings. As a result of this incompatability and clashing between his primitive and instinctive urges on the one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MENTAL DEFICIENCY WITH PSYCHOSIS
SCHIZOPHRENIA
AFFECTIVE REACTIONS

hand and his desire to respect and conform to the mores and ideals of his group on the other, various competing forces struggle for control of the organism."

Failure to maintain equilibrium among these dynamic tendencies of the personality leads, of course, to mental illness. From the writers' studies, it appears that before such failure can result in a "functional" psychosis, the individual's intelligence quotient should be at least 50. Such reactions are illustrated by the following:

Case 15. A. W., female, aged 39, I. Q. 72. Patient's parents died when she was quite young. She lived with various relatives but did not adjust well. As a child, she was described as being insecure and unhappy. She did poorly at school, leaving at 14 while in the fourth grade. At 20, she married; and she has had four children. The oldest child is crippled and must attend special classes. The patient's personality was described as overbearing, demanding, resentful and suspicious. She never accepted blame, took disappointments poorly and had a tendency to boast. She had few friends. Her mental illness began several years ago when she became more seclusive and suspicious. She believed that people wanted to "get" her husband (she had never adjusted well with him) and her crippled child. At times she was preoccupied, refused to eat or care for her personal needs. She frequently referred to a fortune teller who had predicted all the events which were transpiring. Directly before admission, she received messages from God and believed she was to be made a martyr. Later, she believed she was to marry God. She has made a good hospital citizen and although she continues to entertain these same delusions, she does not react to them.

Case 16. H. J., male, Negro, aged 19, I. Q. 57. This youth was described as a quiet and shy child, who shivered and cried if he were scolded. His mother became a permanent resident in a mental hospital when he was three years old. He felt that because he had no mother no one loved him. He was submissive and liked to play with younger and smaller boys. He entered the first grade at seven, and at 14, when he left school, was in the fourth grade. He never had steady employment. At the age of 12, H. J. went to live with a man in the neighborhood who began a homosexual relationship with him, performing fellatio on the boy frequently. This situation lasted for several years until the present illness. The house was broken into one evening and some things were stolen. The patient became fearful that he would be accused of the theft. He believed that automobile lights

were the flashlights of police coming after him. He ran to the police station and confessed his relationship with his partner. While in custody at the station, he became noisy, tore off his clothes, exposed himself, and masturbated continuously. On admission to the hospital, he was manneristic and almost entirely mute. He would stand in one position for long periods and at times showed cerea flexibilitas. After one month, he seemed much improved; but he had no insight.

If a correct evaluation of a psychotic patient's actual inherent mental capacity is to be made and the error of evaluating only the patient's present abilities is avoided (such an error as we believe was made by Duncan, et al.,[4, 5]) the tests must be performed by a well-trained psychometrist, experienced in examining psychotic patients. This fact is well borne out by certain cases which at first did not seem to fit in with our general finding. Two such possible sources of error are as follows:

Case 17. M. H., female, aged 25, I. Q. 29. (?) Diagnosis, schizophrenia. The patient's mother is feebleminded and the entire family is well known to social agencies. The patient had been a timid, easily frightened child. As she grew older, she was inclined to be seclusive, critical, suspicious, extremely nervous and easily upset. She was interested in moving pictures and love story magazines. She helped in the care of younger children and at one time was employed in a candy factory. At the age of 22, she was brought home in a dazed condition by police. She laughed to herself, refused to go out and complained that the air made her nervous. Later she insisted on scrubbing furniture until the paint was rubbed off. At times, she talked in a confused manner and often refused to answer questions. She lost interest in the newspapers, magazines, and motion pictures. Her conversation was a jargon for the most part; and she complained that voices talked through her mouth. Since admission, there has been much personality disorganization. She talks unintelligibly to herself, destroys clothing and needs constant supervision.

Case 18. H. S., male, aged 23, I. Q. 37. (?) Diagnosis, schizophrenia. Until the present illness, this patient had shown no pecularities in behavior. He was a quiet, submissive person who got along well with people, although he tended to be seclusive. He had few interests in social affairs and did not associate with the opposite sex. A year before admission, he became seclusive, did little work and stayed in the house. At times, he was quarrelsome and irritable and attacked members of his family. As he became worse, he insisted on cooking his own food and lived on cornbread and potatoes. At

this time, he said that the neighbors wanted to harm him and that voices told him to preach to people. He became overly religious and on one occasion interrupted church services by telling the preacher that God had given him permission to take charge. Since admission, H. S. has had periods wherein he is mute, negativistic and resistive and other periods wherein he is excitable, hyperactive and assaultive. At no time, can a rational conversation be held.

In case 17 a review of her record revealed that the patient had had a psychometric examination while attending school and was placed in the high grade mental defective group, thus concurring with the report of the hospital's psychologist, who concluded there was impairment in the present examination. In case 18, although the I. Q. was 37, the scatter was wide, there was inconsistency in other test results, and the vocabulary indicated an original rating of high grade mental defective.

Summary

1. Psychoses occurring in adult mental defectives have been discussed and the following classification recommended for that vague group usually designated as psychosis with mental deficiency: (a) "Mental Deficiency with Psychotic Episode (s)—Rage (or Other Acute Transitory) Reaction;" (b) "Mental Deficiency with Psychosis"—(Prolonged states of hyperactivity, aggressiveness, or hallucinosis with, as a rule, gradual deterioration. The latter may occur independently of the former.)

2. Any psychosis which occurs in persons of normal intelligence can occur in the defective, and when it does so occur, it should be put in its usual classification.

3. From the present study, it would appear that "functional" psychoses do not usually occur in individuals with an I. Q. of less than 50.

4. The importance of having the intelligence of psychotic patients evaluated by a well-trained experienced psychometrist is shown.

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BOOK REVIEWS

The Care of the Psychiatric Patient in General Hospitals. By FRANKLIN G. EBAUGH, M. D. 79 pages. American Hospital Association. 1940. Price $1.00.

Dr. Ebaugh is director of the Colorado Psychopathic Hospital and professor of psychiatry at the University of Colorado School of Medicine at Denver. He has had a large and intimate experience with the care of psychiatric patients in conjunction with general hospital services and is well qualified to write upon this topic.

There are many who believe that the isolation of mental patients in special institutions has been overdone and that they may be cared for in psychiatric wards of general hospitals; and not a few general hospitals admit well-behaved psychiatric patients into their general wards. This is as it should be, and psychiatrists should encourage the ideas that segregation is unwholesome for the psychiatric patient and that surgeons and physicians attending in the general hospitals are missing an opportunity to acquire the practical understanding of mental disorders which would be so easily gained if such patients were admitted. Dr. Thomas J. Heldt some years ago reported that in the psychiatric ward of the Henry Ford Hospital of Detroit, over a period of about four years, there were two suicides, whereas during the same period of time there were three suicides in the general wards of the hospital.

The line of demarcation between illnesses which are recognized as psychiatric and others not so recognized is difficult to define. General hospitals already receive numerous patients suffering from psychoneuroses such as hysteria, neurasthenia and hypochrondriasis; indeed, such patients attract no attention and the internes and nurses are often oblivious of the fact that the patients are examples of psychoses. It would be well to encourage the general hospitals to extend their facilities so as to care for mild cases of mental disorder even though they would feel justified in refusing to receive mental patients who might be noisy or destructive. The difficulty which states such as New York are finding in providing adequate facilities for the increasing numbers of individuals whose admission is requested indicates that some rather radical revision of plans must be made to provide hospital care for all who seek it or for whom it is sought.

Dr. Ebaugh seems to have had something of this sort in mind when he prepared this monograph on the care of the psychiatric patient in general hospitals. There are also useful discussions of the types of cases most often admitted and practical suggestions for the arrangement and equipment of psychiatric wards. He shows conclusively that, with trained personnel, not only can patients of this class be cared for in general or psychiatric wards connected with general hospitals, but also that the presentation of such patients is beneficial to the educational advancement of the residents and attending staff members.

Introduction to Psychobiology and Psychiatry. A Textbook for Nurses. By ESTHER LORING RICHARDS, M. D., Sc.D. Published by The C. V. Mosby Co., St. Louis, 1941. 357 pages. Price $2.50.

Dr. Richards presents a textbook to nurses written in a clear, concise and orderly manner designed to assist in their studies of human behavior in general, and of their own behavior and personalities in particular. The author, associate professor of psychiatry, Johns Hopkins University, and psychiatrist in chief, Baltimore City Hospitals, stresses, with Dr. Adolf Meyer, psychobiological trends in dealing with the "mentally integrated activities of man," the study of man as a whole.

The book is written in two parts, each with its historical introduction and orientation. The first concerns psychobiology, "a study of functioning in normal behavior," and the second, psychiatry, or psychopathology.

The student nurse's study of her own personality is discussed under psychobiology. The "autobiographical record" outlines family background, developmental history and school background, an auto-anamnesis so to speak. Several chapters are devoted to personality study material and mental mechanisms of personality development and adaptive behavior.

The second part, that under the subject of psychopathology, describes history taking and mental examination, as well as minor and major mental diseases of functional and organic origin. An attempt is made to introduce a nomenclature giving a more systematic and etiologically-conditioned label to disease groups.

This timely and informative volume can be recommended as its subtitle indicates as a textbook for nurses. It may be welcomed as a bonanza by the disciples of the Johns Hopkins spirit and it will prove of interest to other students of human behavior although they may accept its viewpoints with a grain of salt.

Objective and Experimental Psychiatry. 2nd Edition. D. Ewen Cameron, M. D. The Macmillan Co., New York, 1941. Cloth. 376 pages. Price $3.75.

A new edition of Professor Cameron's well-known treatise on psychiatry has been called for within five years. Its revision, however, was indicated to bring the work up in line with rapidly developing knowledge. The new edition is considerably improved. Five chapters have been added; the whole material seems to have been rewritten; and some rearrangement has been done.

Dr. Cameron has produced a scholarly and fair presentation of current views in biology, psychology and neuropathology. It is apparent that his leaning is toward the organicists. Perhaps a short quotation will best present his attitude. In speaking of the difficulty in arriving at truth from premises from whatever source the latter may come, he says: "A major factor begins to operate as soon as we accept, in any unqualified way, the validity of observations made by the patient, his relatives, or by ourselves. This factor consists in our tendency to see in any series of happenings primarily what is expected and to fail to see whatever does not fit in." This is a sound philosophy, truly, and one which is fundamental to scientific investigation in every field. It is the unrecognized or unappreciated factor which makes for error in conclusions. After reading these sentences in the first chapter, one anticipates that Professor Cameron will be skeptical of all that cannot be demonstrated beyond peradventure.

His approach to psychiatry is from the laboratory rather than the bedside. Therefore, he does not see that Sigmund Freud has made any contribution to psychiatry worthy even of the slightest reference. His name does not appear, nor is there any reference to psychobiology. The author is not to be misled by statistical data concerning schizophrenia, but he wants to know how the diagnosis was made and whether all the patients so classified suffered from the same disorder. His chapter on heredity is wisely skeptical. He dismisses what has been published about heredity and schizophrenia by saying that it is confusing for the reason that schizophrenia is conceded to be a combination of disorders rather than an entity. The most he will say about the manic-depressive reaction is that some authors feel justified in concluding that there is evidence in favor of familial predisposition. He does not incorporate his own views on this topic. Under the caption of epilepsy, he remarks truly that it is in the same category with schizophrenia and that no definite conclusions are justifiable for that reason.

There is much more of interest in the book—his treatment of endocrine functions and the functions and influences of the principal vitamins. If one wishes to read a well-balanced and well-presented treatise on psychiatry from the standpoint of physiology and physical influences, "objective and experimental psychiatry" will describe the scope of the book. As such it is a valuable contribution.

The Mask of Sanity. An Attempt to Reinterpret the So-called Psychopathic Personality. By HERVEY CLECKLEY, B. S., B. A. (OXON.), M. D. 298 pages with index. The C. V. Mosby Company, St. Louis, 1941. Price not stated.

Dr. Cleckley, professor of neuropsychiatry at the University of Georgia School of Medicine, has had more acquaintance than many psychiatrists with the subject of this study. He was for five years a psychiatrist with the United States Veterans' Administration; and for reasons which he adequately explains—politics among them—had contacts with larger numbers of psychopaths than are found in the populations of most mental hospitals. He mentions one veterans' institution, for example, where more than 10 per cent of new admissions during a two and one-half year period were diagnosed under classifications corresponding to "psychopathic personality."

"The Mask of Sanity" is an unconventional but scholarly attempt to prove that a clinical entity exists among patients now "classified with a fairly heterogenous group under a loose and variously understood term;" that this clinical entity, now commonly included in the diagnosis, "without psychosis—psychopathic personality," is truly psychotic; that it should be recognized as such and treated as such. Dr. Cleckley writes unconventionally, for he approaches his subject from the widely varying standpoints of case histories, fictional and historical characters, medical records, and anecdotes—one of the last concerning "The Psychopath as Psychiatrist." He also writes with scholarship; his book is thoroughly documented and well-reasoned.

Dr. Cleckley suggests designating as "frankly and unquestionably psychotic" the well-known type which is frequently characterized by attractive personality, utter undependability, egocentricity, inability to learn by experience, incapacity for object love, total lack of insight, and exhibition of an "active pattern of self-defeat" which may be "considered an indirect working of the death instinct." There is a thorough review of the literature and much suggestive speculation concerning the possible etiology of this disorder. The author concludes that steps should be taken to

supervise—and, if possible, treat—all persons exhibiting it, regardless of whether they are actively anti-social, and of whether they have episodes now recognized as psychotic.

From Dr. Cleckley's point of view, these persons—except in cases of commission of major crimes, where he would apply the New York State standards for legal insanity—do not belong in prisons, in present-day mental hospitals, or at large. Punishments do not deter them; confinement with persons who have violent disturbances of affect does them no good; and they are expensive nuisances, if not actual menaces, to themselves and to society when at large. Dr. Cleckley suggests that psychiatry first recognize that the mental disorder of this type of psychopath is a psychosis, that the long process of education of the public and law-makers to the same understanding should be undertaken and that the creation of special institutions for supervision should then be sought. Against the enormous time, effort and expense this would entail, he notes the vast amount of human misery and the present great expenditures now caused by the psychopath for police work, courts, prisons, hospitals and futile alcohol "cures." As an example in this connection, it might be noted that an individual now under sentence of death for murder in New York State, was diagnosed psychopathic personality without psychosis when he was in prison some years ago. Dr. Cleckley is no more optimistic about treatment than are most psychiatrists; but he suggests that if transference could be obtained after metrazol or insulin shock, it might be well to attempt formal psychoanalysis—at least in experimental cases.

One does not have to agree with the author's conclusions to summarize this as a highly suggestive and possibly important book, dealing with a baffling and often neglected subject.

The Measurement of Adult Intelligence. By DAVID WECHSLER. The Williams and Wilkins Company, Baltimore, 1939. 196 pages with tables and index. Price $3.50.

The evaluation of adult intelligence has long been a vexing problem. Interest therein has been whetted currently by the setting of the task for psychiatry of filtering emotional and intellectual misfits from those young men presenting themselves for selective service. Perhaps the Bellevue Intelligence Tests developed by Dr. Wechsler may find wide clinical use in at least some of this material. The several reasons for the general dissatisfaction with the usual intelligence tests, based on children's scales, in their application to adults is reviewed by the writer. He cites their lack of standard-

ization, the unsuitability of material prepared for children, the improper emphasis upon speed, and the fallacy of calculating adults' indices of brightness from a basis of the mental age.

The first portion of this book is a lucid though cursory dissertation on the nature of intelligence with especial reference to its range, its aberrations, and its chronological changes in the adult. A discussion of this kind, augmented as it is by practical considerations, constitutes an excellent prologue to the second division of the book. For orientation with respect to the author's viewpoint, a definition may profitably be reproduced: "Intelligence is the aggregate or global capacity of the individual to act purposefully, to think rationally and to deal effectively with his environment." To the psychiatrist, the chapter on mental deterioration, another unsettled problem, will prove interesting. Tests which do not hold up with age are listed as possible criteria for distinguishing deterioration.

Part two consists of a detailed description of the Bellevue Intelligence Scales. The tests have to do with: information, general comprehension, combined memory span for digits forwards and backwards, similarities, arithmetical reasoning, picture arrangement, picture completion, block design, object assembly, digit symbol, and vocabulary as an alternate. All of these, of course, have withstood thorough use in various forms. Standardization and statistical evaluation seem to have been adequate.

The book is, therefore, no exhaustive treatise on intelligence but makes a good manual for administration of the test and subsequent interpretation of the scores. It merits recognition, and the scales should fill a definite need.

Mental Disease and Social Welfare. By HORATIO M. POLLOCK. State Hospitals Press. 1941. 237 pages. Price $2.00.

Since 1911, Dr. Pollock has been busily engaged in collecting statistical information on all phases of the mental hygiene problem. As head of the Statistical Bureau of the State Department of Mental Hygiene, he has had available unusual opportunities and has made good use of them by frequent contributions to current statistical and psychiatric reviews and by several more pretentious books, of which this is the latest. As to the vexatious question of the increase in mental disease and in the number of hospital inmates treated for such afflictions, he comes to the conclusion that, in the United States at least, those states which make the best provision and maintain the highest standards of care have the highest ratio per 100,000 of the general population. This is probably true the world over and suggests the correct answer to the question itself. Mental patients cannot be enumer-

ated until they can be recognized as such. They are not recognized where mental hygiene is not seriously studied and understood. It need cause no alarm to hear that the number of inmates of State hospitals in New York State has doubled in 20 or 25 years. It means nothing more than that the communities have learned to recognize milder forms of mental derangement and can now classify and count them where at the earlier period they passed unrecognized.

The American way of life is undergoing rapid changes; and, more and more, our homes are less adapted for the care of invalids and the latter must be removed to institutions. Fifty years ago New York State resolved that thenceforth indigent mental patients would be the wards of the State. At that time, the burden of their care was relatively small. There were, in 1890, in the State about 75,000 recognized cases. Thirty years later, in 1920, the number had about doubled, and in the past 20 years it has almost doubled again. Dr. Pollock accounts for this by invoking certain basic laws which seem to govern such situations. "Mental disease increases as physical disease decreases," pointing out in support of this that the longer span of life brought about by elimination of contagious and infectious diseases has brought more people to the upper decades of life, where mental disorder is more prevalent than in younger people. "The rate of mental disease is higher in cities than in rural districts." The tendency in New York State and many others is toward a movement into the cities as the nation has become more and more industrialized and the rural population has become relatively lower. Developments in recent years are tending to correct this. The conveniences of rural life in the way of improved communication, the telephone, the radio, the good roads and ease of transportation are now reversing the once prevalent trend.

The third principle has a more ominous connotation. It is: "The rate of mental disease is higher among inferior stocks than among superior stocks." It has been noted for a long time that the birth rate has tended to decline among the superior types of families, first noted perhaps with reference to college graduates as compared with labor classes. It is also true that modern developments in medical science and humanitarian projects and organizations are tending to keep alive the unfit. The weaklings are tided over the critical period of infancy by incubation and other artificial means. Medicine and surgery are vying with each other in saving the lives of hundreds and thousands who only a generation ago would not have survived. These weaklings are saved to reproduce their kind in the decades to follow —the mental weaklings as well as the physical weaklings. This unnatural selection, this survival of the unfit, if corrective measures do not arise or

cannot be developed, will inevitably result in disaster. Prof. G. H. Estabrooks in his recent book* takes a pessimistic view of the future of the human race for this and other reasons, indicating that it is now approaching the fate of the dinosaur. Dr. Pollock, however, with his perennial optimism, admitting that the outlook for mental health from the standpoint of society is now depressing, takes courage from what has been accomplished in physical diseases and, relying upon future research and dissemination of sound mental hygiene principles, believes that the burden of mental disease will in time grow lighter.

There are many who would not agree with the distinguished author in his discussion in Chapters 14 and 15 of the influence of alcohol as a causative factor in mental disease nor in the benefits derived from the experimental period of prohibition. They would point out that during the entire period of the life of the prohibition law diseases diagnosed as alcoholic rose almost steadily until the time of repeal. The low point covered the first dry year and the year preceding it. However, that is a debatable question and does not detract from the value of Dr. Pollock's contribution to the general subject of mental disease and social welfare. His book contains a great deal of information appropriate for speakers and writers. It should be found on the shelves of every medical and scientific library.

Technique of Analytical Psychotherapy. Wilhelm Stekel, M. D. Translation by Eden and Cedar Paul. W. W. Norton & Co., Inc., New York. 1940. 408 pages. Cloth. Price $5.00.

Dr. Stekel has been recognized as a psychotherapist of note. It has been known that he is not in sympathy with the theories of Freud. His attitude toward Freud is ambivalent. At one time he refers to him as a great leader and teacher, referring to his work as "Freud's colossal services." In other passages, he belittles Freud's work and taunts him for having modified his earlier views on the anxiety problem. It is evident that, to Stekel, Freud is a father surrogate and that transference now takes on the positive and now the negative aspect. Stekel's book would have been just as valuable without these references which add nothing to its interest or value but make the reviewer wonder whether his secession from the Freudian school was motivated as he reports—or whether the reasons, given in the preface, which refer to the need for a shorter period of treatment because of the expense to the patient, as well as the other grounds noted, are not rationalizations. Then too, we see, in this connection, a tendency to be

*"Man, The Mechanical Misfit." Macmillan and Company, New York. Reviewed on another page.

boastful over his success with his abbreviated treatment. "Patients who came to me from abroad and were unable to stay more than six or eight weeks in Vienna were freed from their troubles and restored to personal and social health." Then he goes on to refer to the poor success of his colleagues ". . . where analysis was conducted day after day for a year and even for five years without the slightest benefit." He says that the only active method promising success is that "by which free scope is left for the analyst's intuition," by which he is permitted to break in on the patient's free associations and offer pointed suggestions. Yet he says in another place, in ridiculing the castration complex, that it is a result of suggestion on the part of the analyst and that it is rarely produced on the patient's own initiative when the analysis is conducted objectively.

It was necessary to append a glossary, for Stekel has thought it wise to coin new terms to express his thoughts—"parapathy" for neurosis, "paralogia" for psychosis, "organ speech of the mind" which means to Stekel conversion hysteria.

In this book, Stekel presents his method of psychotherapy, illustrating it with 80 short case histories, numerous dream interpretations and many useful observations and cautions about the conduct of psychotherapy. His frankness in dealing with his material is noteworthy. He has the art of making his presentation interesting, and while, according to his reports, he has had many brilliant successes, gained by way of clever interpretations of symptoms, he has also had failures which he relates with entire candor. It is rather difficult to evaluate his methods when he goes upon the assumption that his patients are withholding incidents willfully; and, he has no belief in the existence of unconscious factors, or very little belief. To him, the patient is a clever falsifier who must be unmasked. He does not distinguish between repression and suppression. His denunciation of lay analysts is severe but will be received sympathetically in America.

It should be noted that this volume, written in a period of personal tragedy, may have been a conscious summation of its author's life work. Shortly after its completion, he was found dead, in exile, in his London hotel room on June 27, 1940. Among the documents around him, one read: "I am passing away like a warrior."

While one may find many points of this book which excite opposition, it is only fair to say that this presentation of Stekel's views and theories is full of interest; and anyone who practices psychotherapy could read it with profit.

Born That Way. By EARL R. CARLSON, M. D. The John Day Company, New York. 174 pages. Price $1.75.

Earl R. Carlson has become an outstanding specialist in the field of spastic paralysis because he was "born that way." Son of Swedish immigrant parents, born in a poor section of Minneapolis in 1897, injuries by forceps at birth made him a spastic and athetoid paralytic. He was four years old before he was able to walk with the aid of canes, eight before he was admitted to school, virtually a grown man before he could be sure of controlling his table implements. Because of poverty, his mother gave up hope of a physical cure of his illness; and because of poverty, he was frequently forced to crawl and struggle physically to meet his own needs—an important factor in his therapy. Intelligent fostering at home of his mental development; gradual attainment of an emotional balance which withstood the death of his mother and suicide of his father while he was still struggling for an education; and the aid of understanding and wealthy friends in his fight to enter and complete medical school are the outlines of his earlier years.

Dr. Carlson writes primarily, it would seem, to encourage spastic paralytics and their parents, perhaps to hold out hope to all the physically handicapped. For the profession, however, it is an unusual document, in that it is a case history written by a man who is at once physician and patient. It is, furthermore, something of a general guide to treatment of the condition from which the author suffers and in which he now specializes. The non-specialist may find it exceedingly valuable, in fact, when he is called upon to prescribe therapy for cases of this sort.

Dynamics in Psychology. By WOLFGANG KOEHLER. 158 pages. Liveright Publishing Corp., New York. 1940. Price $2.50.

This book contains the Page-Barbour lectures delivered by Professor Koehler in 1938 at the University of Virginia. The author is not unknown to students of psychology and philosophy. He formerly was a professor of philosophy at the University of Berlin. He is a distinguished authority in his field, with his name associated closely in the minds of many with the subject of "Gestalt Psychology."

The title of the book finds its expression in the sentence: "We want to know not merely what happens, but also how and why it happens." Starting out with simple, commonly-known psychological material, the author demonstrates facts of "functional dependence;" from these latter he develops a theory about the nature of psychological processes in general. He

advances the thesis—supported by experimental evidence and theoretical deductions—that the laws governing psychological processes are identical with the basic laws of physics. Specifically, he concludes that Faraday's law of the electric field can be applied directly to the explanation of certain psychological phenomena, for example, perception, retention, and recall.

Although he admits that our factual knowledge is still rudimentary, Koehler feels, on the other hand, that this knowledge has just reached the stage in which it is possible to correlate psychological and biological facts in one scientific system. "Psychological facts have correlates in the biological realm." "Purely psychological research is not likely to yield a systematic theory of mental facts." He feels that psychology, working hand in hand with physics, biology, and other natural sciences, is able to contribute a great deal to scientific progress. He envisages a psychology in a broad sense, not restricted by narrow academic boundaries. "It seems irrelevant whether an important advance in science is made by men whom we call psychologists or by others whom we call biologists." "In the history of science many times essential advances have first been made possible by the fact that boundaries of special disciplines were *not* respected." "Border regions offer the best opportunities for substantial discoveries." "Trespassing is one of the most successful techniques in science." In the beginning of Chapter 3, Koehler expresses some of his basic philosophic views. For example: "Human civilization seems to be based on the conviction that ultimately certain things are intrinsically sensible and ought to be pursued, whereas others are against sense and must be prevented. I sympathize with those who share this conviction."

The positive and broad approach to difficult problems makes this book stimulating reading. It is recommended to students of psychology and to all those interested in psychobiological problems.

Science and Seizures. New Light on Epilepsy and Migraine. By William Gordon Lennox, M. D., Sc.D. Hon. 258 pages, with index and appendix, including bibliography. Harper & Brothers. New York and London, 1940. Price $2.00.

This book is intended to be informative to two groups, to the general medical practitioners who may feel the need of up-to-date and concise information on epilepsy and migraine for use in practice, and to the public in general, including sufferers from epilepsy and migraine. Besides being informative, this book is part of a campaign—a campaign to stamp out epilepsy by eugenic and other preventive measures.

In the matter of information, the volume serves its purpose admirably. Here the general practitioner with comparatively few epileptic and migrainous patients may find, in convenient form, synopses of diagnostic and treatment procedures, with notes on pharmacological and psychotherapeutic methods—including psychoanalysis—which Dr. Lennox has found of some value in practice. In epilepsy, Dr. Lennox reports more success with dilantin sodium; and, in migraine, with ergotamine tartrate than has been noted by some other physicians.

For the sufferer himself, this book contains much which should be valuable; for the migraine victim, in practical warnings against drug-store pain-killers and in practical advice as to avoidance or alleviation of attacks; for the epileptic, in recital of many facts to lend encouragement and hope. There is much comfort for those who believe their fits to be a disgrace, much sound advice to the handicapped in adopting routines of life and in choosing careers where epilepsy will interfere least with success. Dr. Lennox pertinently lists eminent epilepties, from Julius Caesar to Guy de Maupassant; although his inclusion of Van Gogh—concerning whom speculative diagnoses have included schizophrenia and an organic psychosis—as "the best example of psychomotor epilepsy" may be a less successful attempt at psychotherapy, since few persons could find encouragement in the belief they had mental ills in common with that disordered genius. There is also hopeful discussion of the "epileptic personality." Dr. Lennox believes the description of this unpleasant type is based largely on observations of institutionalized patients. "Physicians who deal with patients in hospital clinics or private offices," he observes, "find that the majority of patients are no more peculiar than the 'run' of the population."

Explanation and description of electroencephalography and its use in diagnosing epilepsy provide further factual material of value to both physician and layman. For the physician, there is also a short but comprehensive bibliography, with references to more technical discussions of the subjects upon which this book only briefly touches.

In the field of electroencephalography, Dr. Lennox has done pioneer work with epilepsy. In recent work, he and associates found that less than 10 per cent of both parents of a group of 55 unselected epileptic patients had normal electroencephalograms. He found 60 per cent of near relatives of a group of 94 epilepties had abnormal records. Parenthetically—as reported in their article on electroencephalography by Drs. Pacella and Barrera in this issue of THE PSYCHIATRIC QUARTERLY—studies at the New York State Psychiatric Institute and Hospital and at the Johns Hopkins Medical School have likewise found a high incidence of abnormal brain potentials

in the near relatives of epileptics. Dr. Lennox points to this high incidence and advances much other evidence in support of his thesis that epilepsy is inherited.

Dr. Lennox believes that his own research and much other evidence justify the conclusion that there is a "veritable sea of persons (numbering in the United States some ten to fifteen millions) who have a disturbance in the electrical pulsations of their nervous systems." In this group, he feels, migraine sufferers "probably" also belong, despite the fact that expert research workers have failed to find significant abnormalities in their electroencephalograms. Dr. Lennox has reenforced the view, however, that migraine and epilepsy are associated by a study showing an abnormally high incidence of migraine among the parents of a large group of epileptics and an abnormally high incidence of epilepsy among the near relatives of a large group of migrainous patients. He suggests that migraine may be "epilepsy of the vegetative nervous system" and that, if an electrode could be placed in the hypothalamus, abnormal waves might be recorded. Pure hypothesis, but ingenious speculation!

This is important and suggestive material for psychiatric consideration. Much of it has already been presented in scientific papers which have aroused much discussion and differences of opinion. Dr. Wilder Penfield of Montreal, who has done much work on epilepsy in connection with brain surgery, is one of those who have taken public issue on at least one occasion with what he terms Dr. Lennox's assumption that "the essential characteristicistic of epileptic seizures is the electrical brain wave," a matter which he remarked seemed to him to be "open to much discussion." It is also possible for other mechanisms than inheritance to account for familial distribution of certain abnormalities; and Dr. Lennox does not seem to have disposed of this possibility in his discussion of abnormal brain waves.

It is at this point that the soundness of Dr. Lennox's present work comes into serious question. As has been noted, "Science and Seizures" is not merely informative; it is part of a crusade. Dr. Lennox considers the inheritance of epilepsy to be fully proved; believes persons with abnormal brain waves, whom he sets at "a tenth or more of the population," to be carriers; and proposes to eliminate the disorder from the race by eugenics. He notes that a large proportion of "carriers" have "desirable physical and mental characteristics" and does not suggest that the entire group be forbidden to have children. But he does propose a campaign to make electroencephalography available to everybody, educate individuals to have electroencephalograms made before marriage, and—in cases of abnormal waves—obtain medical advice as to whether to marry at all or to have children in case of marriage. He notes that adequate data on migraine are lacking,

but suggests the application of eugenics here also, saying "it would seem wise" for the individual with migraine not to marry another with the same disorder or with any brain wave abnormality.

This is the stuff scare-headlines are made of. It is calculated to frighten a large proportion of Dr. Lennox's lay readers—and to no purpose, since electroencephalography is not generally available; and its interpretation would still be subject to dispute if it were. A public health campaign should be based on exact medical knowledge; and in this case, every other possibility should be disposed of before the public is informed that an unknown one out of every 10 is likely to have epileptic children. This campaign for a program of eugenics while the interpretation of the electroencephalographic records is still subject to scientific discussion cannot be considered good scientific procedure. It certainly is not good mental hygiene.

First Aid in Emergencies. By Eldridge L. Eliason, A. B., M. D., Sc.D., F. A. C. S. Tenth edition, completely revised and reset. J. B. Lippincott Company, Philadelphia, Montreal and London, 1941. 260 pages with 126 illustrations. Cloth. Pocket size. Price $1.75.

Any book that has reached a circulation of 10 editions must fill a recognized need in its field. First published in 1915, a new edition has appeared every three or four years. The claim may now be made for it that it is a medical classic.

It is not addressed primarily to physicians. Perhaps it was intended originally for the use of life guards, firemen, policemen, Boy Scouts, and for the home. Technical terms have been avoided. The author's effort has been to present a well-defined picture of what to do in an emergency and how to go about it. The numerous illustrations help in carrying out this purpose. Many of them are reproduced from photographs, illustrating how injured persons should be lifted and transported; how artificial respiration should be administered. Colored plates make clear the location of the internal organs, the arteries and veins.

The volume shows how temporary splints for fractures of the extremities may be applied by bandages made of neckties, belts, handkerchiefs, and strips of clothing, and how a sound lower limb may be utilized as an additional support for an injured one. A useful chapter is devoted to poisonous plants—poison ivy, black cherry, loco weed, and the more commonly found of the poison mushrooms. All are illustrated and described to make identification easy. A copious index is appended.

The present edition is fully up to the standard of early ones, and its makeup has been improved. It is predicted that "First Aid in Emergencies" will continue to receive the approval of the groups to whom it is addressed.

Man the Mechanical Misfit. By G. H. ESTABROOKS. 251 pages with index. The Macmillan Company. New York, 1941. Price $2.50.

Dr. Estabrooks, who is professor of psychology at Colgate University, returns to the field of anthropology—in which he took his bachelor's degree at Oxford—to write, as he puts it, "a popular work on a very unpopular thesis within the realm of accepted scientific fact." *Mene, Mene, Tekel, Upharsin,* nature has weighed the human race in the same balance in which she weighed the dinosaur; has found man wanting, as she once found the dinosaur; and she has doomed man, with perhaps 10,000 or 1,000,000 years to go, to the same extinction which overtook the dinosaur.

Dr. Estabrooks contemplates this gloomy prospect with an evident lusty enjoyment of the healthy rows his prediction will stir up. Civilization, he contends, has put an end to the process of natural selection; the modern doctor—"the greatest enemy the human race has as a race"—is preserving weak strains to breed and pass on their inherited weaknesses; preventive medicine is destroying natural immunity to disease by using its vaccines to preserve the non-immune to breed; modern diet and modern stress are wrecking our digestive and nervous systems; and we are breeding faster from our mentally inferior stocks than from our mentally normal. And man, therefore, "is slipping" with "astounding speed."

This is an all too inadequate summary of the indictment Dr. Estabrooks draws from many sources, anthropological and biological; and it is something of a summary, too, of what many biologists have been saying for years. The indictment as a whole might well be prescribed reading for the complacent.

It should be noted at the outset that there is sound scientific foundation for the general observations Dr. Estabrooks makes of the institutions and the trends in breeding of civilized mankind, although many will take issue with him on specific illustrations. As to his conclusion, however, that the processes he observes prove modern man to be a "glorious failure," hell-bent for destruction through absorption of his "potent poison," civilization, the evidence seems subject to more than one interpretation.

There is no disputing the fact, for example, that breeding from strains which are weak physically and mentally is not improving the race. But comparative data seem lacking to prove that the process is going on more

rapidly now than during previous ages of mankind's development. Dr. Estabrooks seems satisfied with human evolution up to the development of Cro-Magnon man, whom he calls the "finest physical specimen of the entire human race" and who he believes was exterminated by the "germs" of civilization in the hands of modern man. It is worth questioning what inferences can be drawn justly from comparison of Cro-Magnon man and ourselves. The assumption that Cro-Magnon man was of a different race than modern man has been challenged. Ernest A. Hooten, a high authority in the restricted field of physical anthropology, points out that modern men of Cro-Magnon cranial and skeletal proportions may be produced by matings between dolichocephalic Nordics or Mediterraneans and brachycephalic Alpines, a fact which suggests that these modern bearers of civilization's "germs" created Cro-Magnon man by racial crossings, instead of killing him.

But whether our ancestors were Cro-Magnon men themselves or merely the killers of Cro-Magnon men, comparative evidence for the degeneracy of modern man is not too clear. The inside of Cro-Magnon man's roomy and well-formed skull does not reveal the quality of the brain which formerly filled it; and the sturdy bones of his frame can bear evidence to comparatively few of the ills of the soft parts which once draped it. It might be difficult to prove that brawny morons could not survive as paleolithic hunters, perhaps outbreeding the more intelligent among the physically weaker. It is even conceivable that psychotic Cro-Magnons could survive and breed, protected as modern primitives have protected psychotics, through superstitious fears of their "powers." And since primitive man presumably bred young, it is conceivable that the physically admirable Cro-Magnons could pass on to their descendants physical weaknesses of types which modern man —breeding later in life—might pass on less frequently, were it not for his doctor.

As to whether the race of modern man is degenerating physically or mentally from the types of his immediate ancestors is a question which, a century or two hence, might receive a more authoritative answer. That answer may confirm Dr. Estabrooks' gloomiest views; but this reviewer doubts if modern science—which has had time to study but a few generations of man, which has not yet digested the great mass of data it has collected, and which is still puzzled about the mechanisms by which many conditions are inherited—is yet in a position to give it. He does not, however, question the urgency of Dr. Estabrooks' plea that a major effort be made to strengthen

man's biological position or his contention that the principal responsibility rests on medicine. We can spare the time; Dr. Estabrooks allots man at least another 10 millenia; and, meanwhile, we are reversing one process which he deplores—war is once more killing the weak with the strong—bombs to the aid of natural selection.

The Doctor and the Difficult Child. By WILLIAM MOODIE, M. D., F. R. C. P., D. P. M. The Commonwealth Fund, New York, 1940. 214 pages. Cloth. Price $1.50.

Dr. Moodie has been for some years medical director of the London Child Guidance Clinic and Training Center. This book, written in simple and unaffected language, offers to the general practitioner and intelligent lay reader a practical review of the emotional problems met with among children in daily practice. The point of view takes in the situation of the parents and evinces the author's sympathetic attitude toward the child. After an introductory section, intended to assist in recognition of the true character of the problem, and suggestions for utilizing the history of the individual child and his family *milieu,* the author takes up in Part Two more definite problems and how they should be investigated and dealt with: stealing, daydreaming, feeding difficulties, enuresis, nervousness and others. Attention is given to the disturbances of sleep, the speech defects, epileptic and epileptoid attacks and more definite psychoses in children. It is evident that Dr. Moodie has encountered what all psychiatrists find: That one or both parents are more in need of treatment than is the child. His sympathies are with his little patients.

Perhaps the most valuable feature of this book is the author's insistence upon a well-prepared history and his ingenuity in making use of the suggestions and hints which come to him from the child's own record and speech. The author has presented to us the products of a long experience in dealing with the emotional problems—for so many of them prove to be of that origin—met with in a large child guidance clinic in a metropolitan center. He recognizes the importance of mental retardation as the answer to some of the questions that are brought up. The book is made interesting and practical by brief accounts of the behavior and personality of many abnormal children. Social workers, nurses, and clinic physicians will be particularly interested in the perusal of this small volume.

Nervous and Mental Diseases for Nurses. By IRVING J. SANDS, M. D. W. B. Saunders Company, Philadelphia and London, 1941. 336 pages. Fourth edition. Price $2.25.

The arrival at the desk of the review editor of a new edition of Sands' "Nervous and Mental Diseases for Nurses" occasions no surprise. Three earlier editions have met with notable success, the book being prescribed as a textbook in many of the leading nursing schools. There are three textbooks on this subject which are popular. Sands gives more attention to the neurological disorders than the others do. In fact, he leans rather strongly to the neurological although recognizing the importance of psychiatric afflictions. Nearly half the book is devoted to neurological subjects.

The fourth edition has been extensively revised to keep abreast of the recent developments in psychiatry and neurology. A textbook of this sort needs to be frequently revised. The increased importance attached to the vitamin deficiencies and to shock therapy, which is now in a state of flux, are examples of the advances that are being made in neurology and psychiatry. A book authoritative and complete when published does not remain so for more than a year or two. Dr. Sands and his publishers appear to recognize this and are to be commended for their enterprise in putting our four editions in about 12 years.

It is predicted that the new edition will be cordially received and will carry on the distinction gained by the earlier editions.

Personal Problems of Everyday Life. Practical Aspects of Mental Hygiene. By LEE EDWARD TRAVIS, Ph.D., and DOROTHY WALTER BARUCH, Ph.D. D. Appleton-Century Company, Inc., New York, London, 1941. 392 pages with index. Price $2.75.

Popular works on mental hygiene are appearing in rapidly increasing numbers, some, unfortunately, of types which appear more likely to encourage mental illness than to combat it. It is a distinct pleasure, therefore, to record that Drs. Travis and Baruch have produced a book which appears to be thoroughly grounded on scientific fact and presented in a fashion which should be of value to any intelligent lay reader in advancing his understanding of himself and other persons. Drawing on generally accepted psychiatric concepts, the authors explain in non-technical language, how mental ills may arise, the forms they may take, what a sufferer can do about them for himself—and when and to whom the sufferer should go for assistance to overcome mental disorder. The chapter on whom to consult is specific and detailed, and—in times when mind-healing quackery of all kinds runs riot—is particularly valuable.

There is excellent discussion of infancy, childhood and adolescence, with adequate treatment of the problem of sexual development—concerning which the authors may have been influenced by the psychoanalytic point of view. Similarly, the question of sex and marriage has been handled unusually well, though it might be wished that the authors had placed even more stress on psychogenic sex difficulties and more emphasis on the fact that professional help is usually required to relieve them. Necessarily, as a popular work, the book is superficial; and perhaps necessarily also in a popular work, the authors have been dogmatic about some matters concerning which there is much professional debate. Most pediatricians and many psychiatrists, for example, would take issue with some of the advice on infant feeding and habit training; but this is one subject where the young mother is likely to work out her own compromise between principles and what she thinks are possibilities; and the views of Drs. Travis and Baruch, even if not fully accepted, may have much benefit in countering the advice of the, "Don't love him, let him howl" school.

Psychiatric Social Work. By Lois Meredith French. The Commonwealth Fund, New York, 1940. 344 pages with index. Price $2.25.

Mrs. Lois Meredith French, psychiatric social worker and instructor in mental hygiene, New Jersey State Teachers College at Newark, has been the director of trend study of the A. A. P. S. W. since its inception in 1931. In 1930, following an analysis made by the membership committee to determine the professional requirements for admission to the association, a report was made that a detailed study of the whole field was needed to clarify the definition of psychiatric social work. An appeal was made to the Commonwealth Fund for financial aid; and, when it was granted, the study was started under the supervision of the association's advisory committee on standards. This volume is the report of that study for the years 1931 to 1938.

It is the first comprehensive description of psychiatric social work and makes available "information concerning the field and function of this young and growing service." It deals with the origins of the specialized service; its relation to psychiatry and its rapid expansion in many other areas; a discussion of trends toward future developments; and the problems of training—both theoretical and field experience.

Dr. George S. Stevenson, in the introduction, says in part:

"At first, psychiatric social work contributed chiefly to the halting of the progress of mental disease, to ensuring the return of sick people to an effective and satisfying place in society, and to the forestalling of the breakdown itself. Later, its task broadened to participate in the movement to extend the knowledge, the experiences, and the point of view of psychiatry into education, public health, public welfare, and other fields of human relations, with an aim not only to prevent mental disease but to spread understanding of emotional development and problems and of how to bring about satisfactory adjustment.

"The contributions of psychiatric social work promise a social value that extends far beyond psychiatry. Maladjusted individuals give a magnified picture of adverse elements in our culture that bear down on the total population. The social study of the neurotic and psychotic helps to tell us where general social progress may be made. Thus as a contribution to research, the service has a potential value, definitely indicated yet to date not greatly realized."

Besides being of great importance to every psychiatric social worker, this book will also prove instructive to board members of social agencies, to social workers who are concerned with the mental hygiene approach to their work, and to anyone else with interests in this field.

Schizophrenia in Childhood. By CHARLES BRADLEY, M. D. The Macmillan Company, New York, 1941. 152 pages, with bibliography, author index, and subject index. Price $2.50.

This slim volume is an important summary of present knowledge concerning schizophrenia in childhood, i. e., before the onset of puberty. In addition, the author presents illustrative case material from his own experience at the Emma Pendleton Bradley Home, thereby explaining diagnostic criteria. This part of the work should aid in furthering uniformity of case reports by future writers. Twenty pages are devoted to differential diagnosis, and nine to prophylaxis and treatment.

The outlook for childhood schizophrenia is apparently gloomy, and its early diagnosis makes a practical difference, as, "The presence of so deep-seated and malignant an illness necessitates long-range planning for the child even though therapeutic results scarcely encourage or demand that treatment be started early or at great sacrifice."

EDITORIAL COMMENT

THE PETERSON LAW

Since April 27 of this year, when the Peterson Law went into effect, the State of New York has authorized tests which are designed to determine scientifically the question of drunkenness—in cases involving charges of driving while intoxicated—by taking into account differences in individual tolerance for alcohol. Newspaper accounts indicate that when alcohol concentrations of between .05 and .15 per cent are found in the blood, breath, urine or saliva of a defendant, his drinking habits may be taken into consideration in determining his sobriety or intoxication, apparently on the theory that the "seasoned drinker" has a higher tolerance for beverage alcohol than the novice. Alcohol concentrations of less than .05 per cent are prima facie evidence of sobriety and of over .15 per cent prima facie evidence of intoxication.

In view of a study reported in the April, 1941, PSYCHIATRIC QUARTERLY, by Drs. S. Eugene Barrera and Douglas McG. Kelley of the New York State Psychiatric Institute and Hospital, psychiatrists of the State hospital service have reason to watch this medico-legal experiment with considerable interest. Drs. Kelley and Barrera, studying 19 cases of experimental alcoholism, found clinical signs of moderate intoxication in one subject who had ingested the equivalent of about one ounce of 100 proof whiskey and who had a blood alcohol concentration of only .025 per cent—a fact which indicates the .05 per cent level is too high for prima facie evidence of sobriety. Under exactly similar controlled conditions, they found that the experimental subject who proved to have the highest tolerance for alcohol displayed the same clinical signs of moderate intoxication after having drunk the equivalent of about five ounces of whiskey and after having reached a blood alcohol concentration of .12 per cent—a fact which indicates that a lower concentration than the .15 per cent now established by law might well be accepted as prima facie evidence of intoxication.

The Institute experiment, moreover, not only suggests that the alcohol concentration levels specified in the present law might well be changed, but it suggests as well that drinking habits are not sound criteria by which to estimate individual differences in tolerance for alcohol. The opinion is probably general, outside the medical profession, that habitual use of alcohol increases tolerance for it. The man who observes that, after the original illness caused by tobacco, tolerance for tobacco increases, may well apply the same reasoning to alcohol, forgetting that tolerance for such familiar beverages as tea and coffee does not increase with habitual use. Similarly, the

medical research worker who assumes that tolerance for alcohol increases with its use—and a number of recent writers have made that assumption—may be drawing an unjustifiable analogy from the fact that the matter of increasing tolerance is so often an important problem in pharmacotherapy. The Psychiatric Institute investigators could find no relation whatever between individual drinking habits and individual tolerance for beverage alcohol—some of the experimental subjects who drank more than moderately had less tolerance than some who drank only occasionally. An apparent relationship was found, however, between the blood alcohol level at which an individual's intoxication was apparent clinically and the degree of irritation which a subcutaneous injection of alcohol caused to the same subject's skin—the greater the skin irritation, the lower the tolerance for beverage alcohol. The group tested was small; and further experimentation may be indicated before definite conclusions are drawn; but there was exact correspondence in all cases studied between degrees of tolerance for subcutaneously injected alcohol and degrees of tolerance for ingested beverage alcohol.

The relationship shown in the skin tests might be of great importance in the administration of any law which calls for tests of blood alcohol levels. These tests are permissive, not compulsory; but those familiar with practical police work know how easily permissive procedures which tend to aid the prosecution become virtually compulsory. In the case of the present law, a successful defense—if drinking habits were fully established as scientifically sound criteria for judging individual differences in tolerance for alcohol—might be difficult. An accused person's only recourse against a police surgeon's findings of a high alcoholic content of the blood would appear to be to produce evidence that he was habitually intemperate; and few attorneys would care to present such a defense to a jury.

If, however, the new law could permit the study of the alcohol susceptibility skin test under field conditions, and if the validity of the apparent relationship between skin tolerance and tolerance for beverage achohol could be established, the accused in cases involving drunkenness could have a defense against overzealous prosecution which a jury might accept; and the police would have more accurate determinants as to whether to prosecute. But knowledge of practical problems of law-enforcement strengthens the belief—based on the Institute's experiment—that if drinking habits alone are to be considered scientific criteria for tolerance, when testimony as to blood alcohol levels is presented as evidence relevant to sobriety or intoxication, serious miscarriages of justice may result. Both from the viewpoint of justice and from that of the advancement of science, much further research seems desirable.

LETTER TO THE EDITOR

The QUARTERLY has received the following letter from Dr. Neil A. Dayton, the well-known authority on mental hygiene statistics, and takes pleasure in printing it in full.

No further comments are necessary; a careful reading of Dr. Dayton's interesting communication will make clear his own position and will throw light upon the reported high frequency of psychoses with alcoholic etiology in the state of Massachusetts.

June 16, 1941.

Editor, THE PSYCHIATRIC QUARTERLY,
Sir:

In the April, 1941, issue of the PSYCHIATRIC QUARTERLY there is an editorial comment on supposed remarks made by me in connection with alcoholic mental disease in the United States. The quotation reads as follows:

> "Certain reports have been made recently which tend to show a surprisingly high incidence of alcoholic mental disease in the United States. Some of the figures are so startling as to call, perhaps, for a critical and dispassionate examination.
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> "For one example, . . . Dr. Neil A. Dayton of Boston is quoted by Dr. Robert S. Carroll, in a book reviewed in this issue of the PSYCHIATRIC QUARTERLY, as including in his final report of a 12-year survey of certain psychiatric problems the declaration that 'more than one-fifth of all United States mental patients are alcoholics.' It would be interesting to know upon what assumptions these authorities base their figures."

The three-page comment ends with this pungent remark: "Too many guesses assume the respectable garments of statistics, garments to which no guess is entitled, not even a shrewd one."

In the first place, may I say that it would not have been too difficult to check my statements directly from my own publication and not quote me through a third person. In this case the editor has undertaken to comment on a quotation which is in serious error. I made no reference to mental disorders in the United States but confined my remarks to Massachusetts. The exact quotation, which may be found on page 144 of "New Facts and Mental Disorders," reads as follows:

> "Chronic alcoholism appears as a prominent etiological factor in one-fifth of all admissions to mental hospitals in Massachusetts."

I would like to answer the question raised by the editor: "It would be interesting to know upon what assumptions these authorities base their figures." My remark was based upon a very careful research study conducted under the auspices of the Rockefeller Foundation in Massachusetts Mental Hospitals during the years 1928-1935. All admissions, discharges, and deaths to all public mental hospitals in this state between the years 1917 and 1933 were analyzed. We did not take the existing statistics compiled by statistical clerks in the various hospitals. Our preliminary work showed us that the editor's trust in the accuracy of statistical clerks in institutions is not borne out by the facts of the case. We found it expedient to have special research groups go over each record individually and go back of the statement of the statistical clerk and see whether or not this statement checked with the facts. One of the items studied was that of the alcoholic habits of the patient prior to admission. Each one of the 89,190 cases studied was carefully investigated. During the course of our analysis we found that there were countless patients who were not diagnosed as alcoholic psychoses but had chronic alcoholism in their histories. This alcoholism had played a prominent part in their lives and had introduced many stresses. When these patients developed a mental disorder and were admitted to a mental hospital they presented symptoms which caused the hospital psychiatrist to place them in some other diagnostic category. However, it was clear from the historical data that the physicians were tending to minimize the effects of alcohol and to emphasize other factors that were relatively unimportant. A man might lose his job after ten years of drinking, neglect and abuse his family, go down into the gutter, develop a psychosis, be admitted to a mental hospital and be diagnosed as a manic-depressive psychosis. In our analysis we carefully recorded the exact diagnosis made by the hospital staff. However, we did record also that this patient had been "intemperate in the use of alcohol," before admission to the hospital. When we had finished the collection of all of the data on this huge number of cases, it occurred to me that it might be interesting to analyze the subject of alcoholism not from the viewpoint of the alcoholic psychoses but from the viewpoint of persons who presented chronic alcoholism as a prominent etiological factor in the production of the psychosis. After we had made this analysis it came out that one-fifth of all of the admissions to our Massachusetts mental hospitals were showing chronic alcoholism as a prominent etiological factor. I, therefore, felt justified in making this statement only in application to the particular sample studied in our research project.

I am sure that the editor underestimates my appreciation of the value of statistics if he feels that I would indulge in guesses. The editor plainly questions my facts in the remark, "The estimates attributed to Dr. Dayton may appear to have all the validity of the accurate New York statistics." Again I point out that my conclusions were not estimates. They were facts based on very careful research work. Our study had the advantage of direct contact by trained research workers with every patient's record in each case studied. We did not take the word of any statistical clerk as is done in the New York statistics of which the editorial writer is so very proud. I feel that any unbiased observer would credit our research methods with as much accuracy as the routine annual collection of statistics under the New York State Department of Mental Hygiene. If any reader would like to check the methods which were used, I would like to refer them to Chapter 12 of our publication "New Facts on Mental Disorders." There the exact methods are outlined in detail.

The editor may be interested in more recent figures on the relationship of chronic alcoholism and mental disorders. The study on which I reported was based on admissions to mental hospitals during the years 1917-1933. If I were asked to comment on the present situation, since the repeal of Prohibition, I would give a much higher figure for chronic alcoholism in mental disease. Prior to 1933 the figure of one-fifth was quite satisfactory for the Commonwealth of Massachusetts. Since 1933 there has been a steady rise and since 1938 at least 26 per cent of all first admissions have been classified as "intemperate in the use of alcohol."* In Massachusetts, at least, chronic alcoholism is a prominent etiological factor in *one-fourth* of all first admissions to mental hospitals. Thus, the situation which the editor questioned so emphatically is becoming of greater significance as time goes on.

I think that the thoughts expressed by the editor in this comment reflect quite generally what I might refer to as the indifference of psychiatrists to the part alcohol is playing in mental disease today. There is no particular point in confining our entire opinion as to the effects of alcohol to cases diagnosed as alcoholic psychoses. When we do this we get into the matter of personal opinion by the psychiatrist as to the place and significance of this symptom or that symptom. We know now that there are thousands of mental patients who are getting along in the community and do not require hospital care. When the stresses to which they are subjected mount up to a certain level, the mental symptoms become clear to the rest of the world and someone takes the necessary steps to have them placed in

*Annual Report of the Commissioner of Mental Health for the year ending Nov. 30, 1939 (page 169—Table 33).

an institution. If they are not subjected to these unusual stresses, they may very well remain in the community for a good many years. Why should not psychiatrists recognize the part that chronic alcoholism is playing in producing this final breakdown? To my mind it is far more important to let our statistics show the part that alcohol has played in all psychoses rather than basing our opinion as to the total effect of alcohol upon the diagnosis of the alcoholic psychoses alone.

NEIL A. DAYTON, M. D.,
Director of Statistics,
Department of Mental Health,
Commonwealth of Massachusetts.

NEWS AND COMMENT

DR. RALPH P. FOLSOM DIES

THE PSYCHIATRIC QUARTERLY records with deep regret the death on May 12 at Hudson River State Hospital of Ralph P. Folsom, M. D., superintendent of that institution, after a career in the State hospital service of 33 years.

Ralph P. Folsom was born in Old Town, Me., September 3, 1876. Graduated from Dartmouth College in 1897, he taught school for several years, then entered the College of Physicians and Surgeons in New York City, where he received his medical degree in 1908. He entered the State hospital service immediately after his graduation, as medical interne at Manhattan State Hospital. Dr. Folsom was first assistant physician at Ward's Island, when he was appointed superintendent of the Hudson River State Hospital on August 1, 1931, to succeed Dr. Clarence O. Cheney, transferred as director to the New York State Psychiatric Institute and Hospital. Active in clinic and other psychiatric work outside the State service, Dr. Folsom had been instructor of psychiatry in the College of Physicians and Surgeons and assistant professor of psychiatry in the Post-Graduate School of Medicine, Columbia University. He was the author of a number of scientific articles.

In the death of Dr. Folsom, the Department of Mental Hygiene has sustained the loss of an official who had been outstanding for his high professional and ethical standards.

Dr. Folsom's death followed a long illness. He leaves his widow, Alice R. Townsend Folsom, three daughters and three sons.

CIVILIAN MENTAL HEALTH REPORTS AVAILABLE

The Military Mobilization Committee of the American Psychiatric Association, of which Dr. Harry A. Steckel is chairman, announces that it has assembled, through its subcommittee dealing with civilian mental health, a considerable amount of information concerning behavior reactions which have appeared in other countries, particularly those which are actively belligerent. This information, together with data concerning the measures which have been taken to deal with these reactions, has been compiled in reports which are available to the members of the association. The reports may be obtained on application to Dr. D. Ewen Cameron, Albany Hospital, Albany, N. Y. Dr. Cameron is chairman of the subcommittee which compiled the information.

NEW BOOK BY DR. POLLOCK IS PUBLISHED

The State Hospitals Press has recently published a new work by Horatio M. Pollock, Ph.D., director of Mental Hygiene Statistics for the New York State Department of Mental Hygiene. "Mental Disease and Social Welfare," a series of original studies made by Dr. Pollock during 30 years in which he has been engaged in the collection of statistical material on all phases of mental hygiene, is reviewed elsewhere in this issue of THE QUARTERLY. It contains much basic information of value, not only to psychiatrists but to students of mental hygiene and general social problems.

Another book by a member of the Department will be published soon by the State Hospitals Press, "Memory and Its Disorders—a Psychiatric Outline," by G. M. Davidson, M. D., senior assistant physician at Manhattan State Hospital.

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AMERICAN PSYCHIATRIC ASSOCIATION MEETS

Members of the New York State hospital staffs presented papers at the annual meeting of the American Psychiatric Association in May on subjects ranging from the new electric shock treatment in the psychoses to psychiatric problems in a State school for mental defectives. A motion picture, "Electric Shock Therapy in Mental Disorders," was presented by Drs. S. Eugene Barrera, principal research psychiatrist of the Psychiatric Institute and Hospital, and Lothar Kalinowsky of Pilgrim State Hospital. Dr. Barrera had a scientific exhibit on the same subject and presided at a round table discussion, while Dr. Kalinowsky was coauthor of a paper dealing with the treatment.

Dr. Nolan D. C. Lewis, director of the Psychiatric Institute, was chairman of a symposium on schizophrenia; Dr. Leland E. Hinsie, assistant director, was moderator for a discussion of occupational therapy; and Dr. Clarence O. Cheney, former director of the Institute, and now medical director of the New York Hospital—Westchester Division, was chairman of a session on brain pathology. Dr. Harry A. Steckel, superintendent of the Syracuse Psychopathic Hospital and chairman of the American Psychiatric Association's committee on military mobilization, presided at one of the sessions conducted under the joint auspices of the committee and representatives of the medical services of the army, navy, draft administration and other federal agencies. Dr. Steckel presented a paper, "The Organization of Psychiatry for the Emergency."

SIR JAMES FRAZER IS DEAD

The death in Cambridge, England, on May 7, of 87-year-old Sir James George Frazer a few hours before the death of his wife is to be noted with regret. When Frazer, then a barrister, not a professional anthropologist, published the first edition of "The Golden Bough" in 1890, he provided a new orientation for research in anthropology, sociology and psychology. In the field of psychiatry, the tremendous work into which that small volume grew—together with other work by Frazer—provided a large number of the basic references for Sigmund Freud's "Totem and Taboo" and thus led to new concepts of the development of society and of the psyche and to new and fruitful methods of research into the primitive and the abnormal.

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ILLINOIS PSYCHIATRIC JOURNAL APPEARS

The "Illinois Psychiatric Journal," a quarterly publication of the Division of Mental Hospitals, Department of Public Welfare, of the state of Illinois, has made its first appearance with the January, 1941, issue. Succeeding the "Psychiatric Exchange" of the Illinois institutions, which was a bi-monthly mimeographed publication issued in 1938 and 1939, the new journal is, in the words of its introduction, "intended to be the scientific publication of the medical and psychiatric staffs of the Department of Public Welfare."

Conrad Sommer, M. D., superintendent of the Division of Mental Hospitals, is editor, the state alienist and state criminologist are editorial advisers, and the associate editors include the clinical directors of the Illinois state hospitals. The first issue, of 34 pages, includes five scientific articles. The editors announce that contributions from authors outside the Illinois state service will be accepted, "especially when their material has particular pertinence in the solution of psychiatric problems encountered in this department."

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DR. LOTT TAKES COUNTY MENTAL HYGIENE POST

Dr. George M. Lott, former director of the state Bureau of Child guidance for Rhode Island and former psychiatrist in the Bureau of Child Guidance in the New York City Department of Education, has been appointed director of the new Mental Hygiene Division of the Suffolk County Department of Health. Dr. Lott is a graduate of the University of Colorado School of Medicine and has been in psychiatric practice since 1930, recently as a member of the staff of the Long Island Home at Amityville and in private practice on Long Island.

The Suffolk County mental hygiene division is believed to be the first such unit in a local health department and was formed to "assist in the mental problems arising out of physical conditions in families served by the Health Department as well as the Probation Department, the Children's Court, the Department of Public Welfare and the Board of Child Welfare." Suffolk County Health Commissioner Davis describes it as intended to supplement but not replace the clinics of the State Department of Mental Hygiene, which Dr. Davis notes, "are chiefly devoted to problems in school children and the followup of their own parole cases." A psychologist and two psychiatric social workers are to assist the division's psychiatrist; and the State Department of Health has extended State aid for the service.

Dr. Thomas Parran, surgeon general of the United States, congratulating the Suffolk County Health Department on the establishing of the mental hygiene division, wrote:

"Please accept my heartiest commendation for this forward step in not only recognizing that to a large degree mental health is purchasable, but also because you have identified mental health as a public health problem and accept responsibility for such work in your organized health department. You are expressing an attitude which reflects mine in this matter and one which the Public Health Service intends to encourage among organized health agencies as vigorously as possible."

EMERGENCY ROSTER ENLARGEMENT SOUGHT

At the request of the National Committee for Mental Hygiene, Inc., THE PSYCHIATRIC QUARTERLY calls attention to the committee's desire to enlarge its roster of physicians who have had some psychiatric service and might be available during the emergency to help keep up the work of some mental hospital. The appeal, issued in behalf of the committee by Dr. George S. Stevenson, medical director, notes that some such physicians "may be doing things which they consider not especially important; some may have retired. Obviously a person whose physical health makes him incapable of good service would not be available, but age of itself will not be considered very detrimental when medical staffs are short."

The committee requests all who see this notice to inform the national committee at 1790 Broadway, New York City, of the names and addresses of any such physicians whom they may know. The committee notes that many such men may not have been actively engaged in psychiatry of late and hence are not members of psychiatric organizations but that "their mental hospital experience in former years may have been of very good standard."